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# SANITARY VOLUNTEER

VOL. 1, JANUARY, 1889. No. 1.

## SALUTATORY.

We present the SANITARY VOLUNTEER as a new recruit in the cause of sanitation, ready to wage a ceaseless warfare against the many foes to health, seen and unseen, that are to be found in every community. We introduce it to the public with too firm a belief in the good it will do to offer any apology for the undertaking. Moreover, we have faith that the people of the state will cordially support a practical sanitary journal.

Our object is to produce a publication that will educate the people to a higher appreciation of the means of preventing disease, and to a better understanding of its causes; to point out the dangers that come from unhealthful surroundings, conditions, etc., and to give information and instruction in matters pertaining to health that will be of practical service to all. The evils of unhygienic environments should be known by all classes.

It is a demonstrated fact that most of the diseases incident to human life are largely preventable—that they are dependent upon somes condition or thing that might be avoided. To present such knowledge a will, at least in some degree, lessen the danger to health, and thereby make happier the family circle, is the chief object of this publication.

We desire it distinctly understood that this is not a technical or professional journal: it is to be conducted in the interests of all classes. It is the official organ of the State Board of Health in communicating with local boards, physicians, town and city authorities, and the public.

We cordially invite all to support the endeavors of the SANITARY VOLUNTEER by becoming subscribers. We wish it might find its way into every home in New Hampshire.

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We should be pleased to have the SANITARY VOLUNTEER placed upon the exchange list of such newspapers and other publications as may receive it. Exchanges will be kept on file at the office of the State Board of Health, and will receive regularly the publications of the board.

## SANITARY AND OTHER NOTES.

Any person receiving a sample copy of the SANITARY VOLUNTEER may regard it as a polite invitation to become a subscriber. Subscribe *now*, so that you may have a complete volume at the end of the year.

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We would call the attention of all interested in the construction of town and village sewers to the excellent article in this issue by Col. George E. Waring, Jr., C. E., of Newport, R. I. It is often a difficult matter to convince town authorities that small sewers are the best in all instances where storm water is excluded and only sewage received. The paper refered to conclusively proves that large sewers are unnecessary. An illustration of this can be seen at Keene, which is the best sewered city in New Hampshire, if not in New England.

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The report of the Committee on Pollution of Water-Supplies, read by the chairman, Dr. Charles Smart, at the recent meeting of the American Public Health Association, is a paper of great value to all interested in a pure water-supply. It has been printed in pamphlet form for the use of state and local boards of health. We will mail a copy to any person in the state upon application.

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The State Board of Health has issued two pamphlets of great value to any community in which diphtheria or scarlet fever exists. They are entitled "DIPHTHERIA: ITS RESTRICTION AND PREVENTION," and "SCARLET FEVER: ITS RESTRICTION AND PREVENTION." A copy of either may be obtained by addressing the board. These pamphlets contain specific directions regarding the sanitary management of the diseases named, and should be read by every family.

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Town-clerks are required by law to make a return in the month of January, to the registrar of vital statistics, of all births, marriages, and deaths that have been reported to them during the preceding year. It is to be hoped that every clerk will be as painstaking as possible to secure a complete and perfect record for their respective towns. No item in the blanks should be left unfilled. The returns thus made are the permanent records of the population, kept by the state in fire-proof apartments, for present and future reference. Their importance cannot be overestimated. Accuracy, legibility, and completeness of returns are

qualities which no clerk should in any degree neglect or overlook. All entries should be made in chronological order.

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The medical profession agree that polluted drinking-water is responsible for more typhoid fever than any other cause. The pollution usually comes from the drainage of privies, sink-drains, barnyards, and other nuisances into the family well. Being filtered through the soil, the pollution is generally of a character not recognized by taste, smell, or sight. Be sure that the water-supply is protected from such dangerous conditions. Many other ills are also contracted by the use of impure water.

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Speaking of polluted water, the second annual report of the State Board of Health gives an account of a well of water containing 49.2 grains of solids per gallon, yet the pollution could not be recognized by the senses. Several persons lost their lives by its use before its dangerous character was known.

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The last legislature authorized local boards of health to examine suspected water-supplies by enacting the following:

SECTION 13. Whenever any well, spring, or other water-supply is suspected of being polluted by sewage or other matters dangerous to health, the health officer or officers, in any town or city where such water-supply exists, may cause an analysis of the suspected water to be made by a competent chemist, without expense to the owner; and if the analysis shows the water to be unfit for drinking purposes, said health officer or officers, upon obtaining the endorsement of the State Board of Health, may prohibit its use; and if it be from a well, may cause the same to be closed, if in the judgment of said State Board of Health such action is necessary. The State Board of Health shall authorize such investigations whenever deemed necessary for the public good. (Chapter III.)

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O thou blessed Health, thou art above all gold and treasure! 'T is thou who enlargest the soul, and openest all its powers to receive instruction and relish virtue! He that hath thee, hath little more to wish for, and he that is so wretched as to want thee, wants everything with thee.—*Sterne.*

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The Hoagland Laboratory, of Brooklyn, N. Y., was formally opened on the 15th of December. This elegantly appointed biological laboratory, with Dr. George M. Sternberg, director, may be looked upon with pride and expectancy by the physicians and sanitarians of this country.

A landlord has no right to allow his rented property to remain in an unsanitary state if such a condition is detrimental to the welfare of others. Even the tenant has rights that he must respect. The owners of a house in Glasgow were fined £100 damages to a tenant who had lost his only child from diphtheria, caused by bad drainage. The proprietors had been notified previously to put the premises in good order, but neglected to do so till the disease appeared. Similar decisions have been rendered in this country.

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The press dispatches announce that Dr. James E. Reeves, of Chattanooga, Tenn., ex-president of the American Public Health Association, has discovered the yellow fever germ. Dr. Reeves is a microscopist of no little fame, and we sincerely hope he has found the long-looked-for microbe. We are compelled, however, to take the announcement *cum grano salis* until more definite information is received. We trust the genial doctor has been more fortunate than his illustrious colleagues in this particular field of research.

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This is the season of the year when the dangers of non-ventilation of sleeping-rooms are the greatest. The air is shut out to keep out the cold, and hundreds suffer the ill-effects that come from a lack of sufficient oxygen and the breathing of air charged with carbonic acid and other poisonous products thrown off by every exhalation. The frosted window pane and damp pillows and walls are visible evidences of non-ventilation upon waking on a cold morning, while the languid feeling and slight headache are often its immediate accompaniment. Frequently the evidences are not so decidedly marked, but the insidious and incalculable injury to health goes on. Be sure that the sleeping-room is well ventilated.

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The habit of drinking freely with the meals is a bad one in any case, says the *Boston Journal of Health*, and especially so if there is any dyspeptic trouble. The reason is, by diluting the gastric juice its action is impaired and digestion delayed. Those people who are overweight are cautioned against it, as quite certain to make them more corpulent. In treating that trouble, self-denial of liquids within two hours before or after eating is very important. If practised, there will, in a majority of cases, result a persistent loss in flesh.

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The choice must be made between the brain and the stomach; the two together cannot be populous. If the one is filled the other must be relieved. To work the head, temperance must be carried into the diet.

—*H. W. Beecher.*

## THE OLD OAKEN BUCKET IN A SANITARY LIGHT.

At a recent meeting of the section on "Public Health, Hygiene, &c.," of the New York Academy of Medicine, Dr. Cyrus Edson, chief of the Bureau of Contagious Diseases, read the following poem, composed by President Bayles, of the New York Board of Health. It was received with marked applause :

The " Old Oaken Bucket," as revised and edited by a " Sanitarian."

With what anguish of mind I remember my childhood,
Recalled in the light of a knowledge since gained,
The malarious farm, the wet fungus-grown wildwood,
The chills then contracted, that since have remained;
The scum-covered duck-pond, the pig-stye close by it,
The ditch where the sour-smelling house-drainage fell;
The damp, shaded dwelling, the foul barnyard nigh it,—
But worse than all else was that terrible well,
And the old oaken bucket, the mould-crusted bucket,
The moss-covered bucket that hung in the well.

Just think of it! Moss on the vessel that lifted
The water I drank in the days called to mind,
Ere I knew what professors and scientists gifted
In the waters of wells by analysis find!
The rotting wood fibre, the oxide of iron,
The algæ, the frog of unusual size,
The water impure as the verses of Byron,
Are things I remember with tears in my eyes.
And to tell the sad truth—though I shudder to think it—
I considered that water uncommonly clear,
And often at noon, when I went there to drink it,
I enjoyed it as much as I now enjoy beer.

How ardent I seized it with hands that were grimy!
And quick to the mud-covered bottom it fell!
Then, reeking with nitrates and nitrites, and slimy
With matter organic, it rose from the well.
Oh! had I but realized in time to avoid them,
The dangers that lurked in that pestilent draught,
I 'd have tested for organic germs, and destroyed them
With potassic permanganate ere I had quaffed.
Or, perchance, I 'd have boiled it and afterward strained it
Through filters of charcoal and gravel combined;
Or, after distilling, condensed and regained it
In potable form, with its filth left behind.

For little I knew of the dread typhoid fever
That lurked in the water I ventured to drink;
But since I' ve become a devoted believer
In the teachings of science, I shudder to think.

And now, far removed from the scenes I 'm describing,
The story for warning to others I tell,
As memory reverts to my youthful imbibing,
And I gag at the thought of that horrible well,
And the old oaken bucket, the fungus-grown bucket—
In fact, the slop-bucket—that hung in the well.

## SUNSHINE IN THE HOUSE.

Let the sunshine into every room in the house. Make it a welcome visitor to the kitchen, dining-room, sitting-room, parlor, bed-rooms—everywhere. It carries with it health and vigor and radiance and good cheer. It is a purifier. It wards off moisture, and mildew, and gloom, and disease. Let the warm rays of the sun embrace the children, strengthen the adults, and rejuvenate the aged.

How often is the life-giving sunshine refused admission lest its health ful beams should fade some color in the filth-laden carpet! How often is disease invited into the shaded and sunless room to await its victim!

There is a healthful efficacy in sunshine that cannot be elsewhere obtained: neither is there a substitute for it. Its effect is physical, mental, moral. Give your rooms and yourself a daily sun-bath. It is as necessary to human life as to the delicate house-plant. Roll up the curtains and open the blinds daily, that this great vivifying and protecting agency may bring its offering of health and happiness to your home.

## ARSENIC POISONING WITH A SUGGESTIVE TITLE.

We have in our possession a quarto volume, entitled "Shadows from the Walls of Death." The book consists of over one hundred specimens of wall paper, all containing arsenic in dangerous quantities. The collection was made by Prof. R. C. Kedzie, of Michigan, in 1874; and the volume was by him presented to the American Public Health Association. In the preface, or remarks accompanying this unique collection, Prof. Kedzie very ably points out the dangers that arise from wall paper containing arsenic, and that its existence in ornamental paper is very common. He gives the following simple test for its detection:

The green arsenical colors are readily soluble in ammonia water. If a little ammonia water poured on the paper discharges the green color, or produces such a change in the color as indicates the removal of green, the paper should be rejected, as it probably contains arsenic. To identify the presence of arsenic in any paper, wet the paper with ammonia water; pour off this on a clean piece of glass, and drop into this a crystal of nitrate of silver, or a small piece of luna caustic. If a yellow precipitate forms around the crystal, it indicates the presence of arsenic.

## SCHOOL-HOUSE REQUIREMENTS.

From an examination of the facts collected by the New Hampshire State Board of Health, relating to some fifteen hundred school-houses, it is plainly evident that sufficient attention has not been hitherto given to the construction and care of our school-houses. The defects exhibited comprise faults in location, construction, ventilation, heating, lighting, desks, out-houses, water-supply, and other unsanitary conditions. The worst state of affairs was not always found where it would naturally be expected; indeed, some very modern school-rooms are little better than pens for the breeding of disease, or for the physical impairment of the tender pupils. In some instances the danger extends beyond the limit of bodily injury, and invades the realm of morality.

In the light of modern sanitary knowledge, the requirements of a healthful school-house are definitely known; and this fact has placed a weighty and sacred duty upon every board of education. No office within the gift of town or city carries with it such a burden of responsibility. Within its supervising province rests, to a very large extent, the physical, mental, and moral welfare of all our children.

There are in this state over 62,000 school children, instructed by a corps of hard and earnest working teachers, numbering over 3,000. For all of these there should be provided school-rooms with every essential to health. The unventilated, over-heated boxes, from which the pupils are dismissed at noon and night with flushed faces, headaches, and blood charged with the noxious products of waste tissue from insufficient ventilation, and the teacher listless and exhausted, are no longer consistent with the spirit of progress, and should be abandoned or reconstructed. It is no wonder that the little ones so frequently fall by some acute inflammatory disease superinduced by the environments of school life, or that so many faithful teachers are broken down by the double strain thus put upon them.

It has been written and rewritten in many forms that a healthy body and a sound mind are essential to the complete development of an individual—a fact to which all agree, while but comparatively few make any effort to secure or maintain the desired combination. Intelligent parents send their children—for whom they have a solicitude second to nothing else on earth—to a school-house fitted in every detail to impair the vital forces and invite disease, without a suspicion of the dangers to which their loved ones are exposed. It seems necessary, therefore, that the public should be made aware of these dangers, in order to secure their abatement with the least possible delay.

Every board of education should study the subject of school-house san-

itation. Its literature is abundant, and its general principles easy of comprehension. The conclusions of experts in the art of school-house structure and hygiene should be accepted with the same confidence that the calculations of an engineer in the construction of a bridge would be received. Until such board is thus qualified it cannot fully perform the functions of its office, or accurately represent the sanitary necessities of the school-houses under its charge to the tax-paying community, through which most reforms have to be secured. It is by no means expected that boards of education will become architects and sanitarians, but they can readily apply the principles which have been made plain by those who have devoted years to the study of these important subjects.

There is no excuse to-day for building school-houses, however small, without suitable means of ventilation—a matter of first importance in all school-rooms; no reason but ignorance for placing windows in *front* of the pupil; no cause for offensive privies but inexcusable neglect; and no justification for any unsanitary condition under ordinary circumstances. The control of these things is mostly beyond the jurisdiction of the teacher: it rests with the people and their legal representatives, the boards of education.

## CRIMINAL EVIDENCE IGNORED.

At the last term of court held in Rockingham county, the grand jury refused to indict a man for selling adulterated milk, notwithstanding positive evidence of the fact was presented. The milk was collected for examination from the producer's hands, analyzed by a competent chemist, and found to be considerably below the legal standard. The law was created in the interests of the producer and dealer, as well as to guard the public against imposition and fraud at the hands of an occasional unscrupulous and dishonest vender. The refusal of the grand jury to bring an indictment in this case is equivalent to sanctioning one of two things: Either that the producer may add twenty per cent. of water to the milk he offers for sale, or that he may sell an equally inferior milk, produced from a scrub grade of poorly fed cows, without fear of the law which he violates. We believe every honest dairyman and farmer in the state will protest against any such license, and ask that their interests be protected by a strict enforcement of the law. If the grand jury labored under the idea that it was subserving the interests of the farmers of the state by such action, it made a grand mistake. Such fraudulent practices, detrimental to the financial interests of the honest producer as well as to the physical welfare of the consumer, especially if the latter be a sickly infant, with life depending upon the quality of its food, should be punished to the full extent of the law.

## GATHERING AN ICE SUPPLY.

As the time approaches for the gathering of the yearly ice-supply, it would be well for all to remember that impure ice is as dangerous as impure water, and as readily found.

*Ice for domestic use should never be gathered from a source where the water before freezing was unfit for drinking purposes.* The idea entertained by some that water, in freezing, eliminates its impurities, is a dangerous theory because it is false. Epidemics have been traced to the use of polluted ice. Analysis and microscopic investigations have shown ice to contain large quantities of organic matter, as well as bacteria, which became active when the ice was melted. The germs of typhoid fever, and probably of other diseases, may be imprisoned in ice, and after liberation, by melting, become active in the production of disease. These are facts well known in sanitary science, and they should be equally well understood by the people.

Be as guarded in the selection of ice as in the choice of a supply of water. Gather ice only from clean streams and ponds. Purchase of no dealer who does not follow this rule.

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## THE CLERGY AND SANITATION.

There is no class or profession, not even excepting the medical, that could do so much for sanitation among the people as the clergy, if they would heartily engage in the work. True, it requires some study and preparation to be able to teach correctly the principles of sanitary science, but it would take an intelligent clergyman only a short time to become sufficiently well informed in its primary principles to successfully impart valuable hygienic instruction to his parishioners. The necessary literature could be obtained, much of it gratuitously, through state boards of health and other health authorities, so that expense would not stand in the way. Even two good sermons a year, practical and to the point, on the dangers of unhealthful surroundings, polluted water, damp cellars, and non-ventilated rooms, might save a like number of funeral discourses. At the least, they would prevent a certain amount of illness, perhaps much more than can be calculated.

Temporal and spiritual welfare are so closely allied that whatever conduces to the advancement of the former has a salutary effect upon the latter, and in no field is this more marked than in sanitary matters. Filth, squalor, poor health, and preventable diseases retard moral and spiritual growth wherever they exist. The clergy have always heroically battled against the evils of intemperance and other visible vices, but they

seem not yet to have realized the vast amount of illness and the many deaths that annually come from some neglect of sanitary law that, in most cases, could be avoided if known in season. Clearly, then, no subject of greater importance to society could be presented from the pulpit than that of sanitation. Its effect would be far-reaching, and an incomparable amount of good would follow.

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## THE RAVAGES OF A HOME PESTILENCE.

The following from that practical sanitary scientist, Prof. Vaughan, of Michigan, is good:

"We shudder at the ravages of cholera, but let us come nearer home. Typhoid fever slays its hundreds where cholera slays its tens. Every death from typhoid fever is unnecessary. If the soil were not contaminated, none would occur. Yet there are 1,000 deaths from this disease in Michigan each year; and for every one who dies ten persons are sick, and not a case is justifiable. Each patient is sick on the average about four weeks, and there are ten thousand sick during the year. This means not only a great loss of wages, but a nurse is required for each person sick, so that twenty thousand people in Michigan give up their entire time to this disease four weeks out of each year. You may keep your premises clean, but only a little fence separates you from your neighbor, and he may be careless. If that neighbor should knock you on the head in a dark night, he would be sent to prison; but he may contaminate your well, and rob you of your life and your family, and you can do nothing. The time will come when it will be a criminal offence for any man, through carelessness, to give his neighbor a communicable disease."

—*Monthly Bulletin, Iowa.*

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## ACTIVITY OF THE SCARLET FEVER POISON AFTER A YEAR.

Dr. J. Brook, surgeon U. S. army, of Fortress Monroe, Va., communicates the following case: "A girl aged about eight, living at this place, was some months ago attacked by scarlet fever, the disease running a typical course. For a long time no possible source of contagion could be discovered. The child had not been absent from home, had been with no one lately exposed, and no other case was known to exist anywhere in the vicinity. Subsequently I learned that one of the house-servants had nursed a case of scarlet fever in a distant city just about a year before. After the case terminated, she packed some of her things, including some clothing then worn, in a trunk, and left the place. A year later she had the trunk sent to her here, opened it, and took out the contents, the little girl being present and handling the things. A few days after the opening of the trunk, the child was attacked, as stated.—*The Medical Record.*

## THE SEWERAGE OF SMALL TOWNS.

By COL. GEORGE E. WARING, JR., C. E.,
*Of Newport, R. I.*

Whatever may be the opinion of engineers and sanitarians as to the relative merits of the combined and separate systems for sewering large cities, there can, I think, be no doubt as to the advantage of the separate system for the smaller towns. Its great economy alone would be a controlling argument where there is no special reason for preferring the combined removal of storm-water and foul sewage. It may be assumed that in towns of small area and moderate population there generally exists a tolerably satisfactory system of surface-gutters and culverts for the removal of storm-water; though it is, in many cases, necessary to improve these, and often to extend the underground work, in order to cover unsightly, inconvenient, or foul water-courses.

The chief motive,—indeed, almost the only motive,—for the introduction of a system of sewerage into small towns, is the necessity for getting rid of its organic wastes, in such a way as not to be offensive and not to be injurious to the public health. This implies the better drainage of houses as well, but the construction of the sewers is the first work; for without this, the proper drainage of town houses is not possible.

The problem of removing organic wastes and of putting them beyond the power to do harm,—that is, of destroying them,—is a large one, and one which has been taken up almost *de novo* during the active life of men who are still active in the work. It is not to be wondered at that the appalling magnitude of the problem of disposal has caused it to be regarded as an intricate and difficult one. Efforts toward its solution had to be made with the means at hand, and under the guidance of men who, however learned, had no precedent to guide them and no positive indication on which to base their theories. Much of the early work was crude work, and all that has been done has stamped itself on professional tradition to a degree that has sometimes given great impetus to false starts.

As we now understand it, the problem, great though it is and difficult though it is, is not an intricate one. It is by no means to be understood that we have reached its best or its complete solution. It does seem clear, however, that we now know enough of its factors to apply ourselves, much more intelligently than our predecessors could do, to its practical solution.

Mere removal is sufficient where sewage may be discharged into a stream, or other body of water adequate to receive it; but removal is

absolutely necessary. Efforts have been made for a long time to avoid the cost of this by improving methods of storage. Sewage cannot safely be stored, either at home or abroad; it does not suffice to hide it in a cesspool or in a large sewer. It must be removed at once, before it begins to putrefy, and through channels that will not leak it out into the sub-soil by the way. If it cannot be delivered into a sufficient body of water, it must in some suitable manner be effectively disposed of, as by use for the irrigation of agricultural land.

We know more about the processes by which waste organic matters are destroyed than we did even a few years ago. Our methods of destruction must be regulated according to what we know of the manner in which nature almost universally breaks up the combinations of waste organized matter and prepares its elements to enter again upon the unceasing cycle of nutrition and activity, and subsequent death and dissolution.

In this destruction of the organic character, we are dependent almost, if not quite entirely, on the development of minute organisms, of which the *bacterium termo* is the type, and apparently the master. This is the bacterium of ordinary putrefaction, active everywhere in the world wherever dead organic matter is exposed to contact with the air at ordinary temperatures. Much of our refuse, before becoming subject to bacterial action, is made to serve the uses of other organisms. It may become food for fishes or for insects; but sooner or later it all falls a prey to those microscopic organisms whose means of life and whose reason for being it is to break down the last vestige of organic character.

The method of disposal, whether natural or artificial, having been determined, the construction of the sewers demands attention. Let us assume a town of ten thousand inhabitants, sloping toward a natural valley that runs through it and leads to a proper point of outlet. Let us suppose that we have absolute power and sufficient appropriation to treat the question as we like. We will lay through every street or alley—one or the other, according to circumstances—a net-work of sewers reaching the immediate vicinity of every house-lot, the sewers joining each other as they go on, until finally the whole are united in one main trunk sewer passing out of the city or town limits at the lowest point.

The purpose of these sewers is to remove foul drainage, and nothing else. The sizes may therefore be established on something like an intelligent basis. We have not to provide for occasional enormous contributions of storm-water, but only for the daily outflow of houses which use about the same amount of water, day by day, and industrial establishments which produce about the same amount of waste, week by week.

The characteristic element of the system would be a lateral sewer of the smallest size, running for as great a distance as that size is applica-

ble to. For reason which will bear investigation, let us adopt a diameter of six inches, maintaining this size until the direct sewer, and the tributaries entering it, aggregate a length of 2,000 feet. Making due allowance for street crossings, unoccupied land, etc., let us assume that there is, on one side of the street or the other, and on the average, one house for every 25 feet of length. This will give us an aggregate of 80 houses, with a population, let us say, of 600, producing a maximum daily amount of sewage equal to 30,000 gallons, or 4,000 cubic feet.

As more water is used and more sewage discharged during the forenoon than during the afternoon, and more during the day than during the night, let us suppose that one half, or 2,000 cubic feet, would be delivered in eight hours, 250 in one hour, or, with a margin for error, five cubic feet in a minute. A 6-inch pipe, laid with the least inclination suitable for such a pipe, or on a fall of 1 to 300, has a capacity of discharge of more than 23 cubic feet per minute, so that, so far as the accommodation of the stream is concerned, our limit of 2,000 feet length, in a closely built area, is very well within the mark. It is not desirable, however, that the sewers should ever be taxed to anything like their full capacity; they should have ample space above the flowing sewage for ventilation, and should be large enough to transmit with out an opportunity to accumulate and form obstructions, everything that can come to them through a 4-inch house drain. They should have a fall of 1 to 200, or more, when possible.

Throughout the lower portion of the sewer, 2,000 feet long, there would be at all times a considerable flow, so that whatever objects, coming from houses, may be delivered into it will be swept along and carried to the outlet without forming deposits. Throughout the upper portion of the line, however, the flow will always be less, will often be slight, and will at times be practically absent. At such points, as is found by experience, solid matters delivered by house-drains in the ordinary volume of water used in discharging a water-closet, for example, will not always be carried forward through the 6-inch pipe. To a greater or less extent they will be stranded by the way; and, unless some special provision is made for their removal, they would in time accumulate to a degree which would produce a very objectionable seat of offensive decomposition.

To obviate this difficulty, to pick up all stranded substances and sweep them forward into the constant current, we resort to artificial flushing. We cannot trust to nature to flush our sewer properly with rain-water, because, sometimes for weeks and weeks together, nature sent us no rain. We cannot trust to hand-flushing for proper efficiency, because of the difficulty of securing the regular and proper performance of such duty by ordinary town employés, and because of its inordinate cost. The best

we can do is to adopt a system of frequent flushing by automatic flush-tanks, so that, without care or thought on the part of those who have charge of the work, the regular, copious daily cleansing of the whole system may be depended on.

As already suggested, the sewers, as they come together and as their length increases, will increase in size. We may assume that for the community under consideration the main sewer as it leaves the town, having a fall of 1 to 500, will have a diameter of 15 inches. If removing only the foul wastes of such a community, this main sewer would never run half full.

The system described, so far as street sewers are concerned, will secure the absolute removal of everything delivered into them at least as frequently as the operation of the flush-tanks takes place,—say once in 24 hours. When the houses of the town are all connected with the sewers, we shall be able to abolish forever the two thousand cesspools and an equal number of privy vaults, by the agency of which the subsoil of the town and the water of its wells are being polluted. All water-borne waste matters will be delivered at once to a proper point of disposal beyond the limits of the town, and all will have been done that can be done in this direction to secure its permanent and satisfactory sanitary improvement.

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## HYGIENE OF FARMS AND FARM-HOUSES AND BUILDINGS.*

By J. CHESTON MORRIS, M. D.,

*Of Philadelphia.*

In the course of twenty-five years of interested observation, I have often been very forcibly struck by the little attention paid to the subject which I propose for your consideration, and by the too often very apparent result of this neglect and indifference. In order that any animal, two-legged or four-legged, should thrive, certain conditions of life must be present. There must be a sufficient supply not only of digestible food, but also of pure water, fresh air, and shelter from inclement weather. We all have often heard that cleanliness is next to godliness; but I fear too many of us are often satisfied with the mere form of one as well as the other, or are content to admire both of them a long way off. This may seem a very sweeping charge; but after I have brought in my array of facts, I will ask you to review in your own minds the surroundings of your own houses and barns before pronouncing it unjustified.

Some years ago, at a meeting of a farmers' club to which I belong, I described what I had seen on my way to the meeting. A well built stone

*Presented before the State Sanitary Convention, at Lewisburgh, Pa.

house about half way down a hill-slope, with a large barn standing above. A little stream started out of the hill-side close by the barn-yard wall, and ran below the house to the spring-house, close to which stood the milking-shed. From this spring-house the family obtained their drinking-supply. In wet weather it was impossible, from the lay of the ground, that the leachings from the barn-yard and milking-sheds should do otherwise than contaminate the water-supply; and then the usual escape for all the drainage was into the stream below. In this way the best part of the manure was constantly lost. The members of the club looked conscience-stricken; nearly every one of them thought I had been describing his premises.

Such a condition of affairs is indeed too common. But what shall we say about the pump which draws water from the well in the barn-yard? True, that is supposed to be only for the cattle to drink. But how often have we seen well bred animals turn with disgust from the cool but highly impregnated water, and refuse to drink until driven to it by uncontrollable thirst! How often will your horse sensibly wait till you have driven him on up the road, and then stop by some (to you) uninviting looking streamlet, and insist on there wetting his fevered tongue! And which of us has not felt unspeakable satisfaction, a sort of renewal of youth and strength, as we have quenched our thirst, during some mountain climb, from some bounding steam or cool spring from a rock under the shady trees! What glass of nectar or champagne can equal that gift of heaven! But when we build our house and take up our abode by the stream, too often we pollute it so that it becomes the bearer of disease. Convenience makes us locate our privies, cesspools, and kitchen middens close at hand, and there are thrown the offal, the waste, the *débris*, the cast-out secretions of our bodies, to ferment and putrefy. Through winter and summer the accumulations go on. Occasionally we clean up our kitchen-yards and pig-pens, when the festering mass becomes too unsightly or offensive; but all the time there is more or less of this death-producing dirt allowed to accumulate around but too many of our houses. Not only is the air we breathe thus contaminated, but our water-supply. We dig a well close by our kitchen door, and thus drain into it the liquid which has percolated from these heaps. It may be some years before we are made aware by an outbreak of typhoid fever or diphtheria of the poison we have been regularly imbibing. I was called to see a family of which several members were thus prostrated. Every effort to locate the cause of the disease was futile, until I looked at the positions of the well and of the privy. These were within thirty feet of each other. The privy was properly protected by a box receptacle, which could be, and no doubt was, emptied from time to time, but this was only a late addi-

tion; formerly there was only a vault, and the overflow from the box and the rain in wet weather could get into the soil. If you remember that one foot in depth of a well will drain an area of thirty feet in diameter around it, you will see how inevitable it was that sooner or later the drainage from that privy should get into that well. Great was the wrath of the lady of the house when I announced my belief that the well-water was contaminated. She was sixty years old, had lived there all her life; her father before her had drank from it, and lived to an old age and raised a large family there. But analysis, as well as bitter experience, testified to the correctness of the accusation. Besides the privy, not more than a hundred feet away stood a fine barn with over forty head of stock, and the barn-yard was soaked and piled with manure. After a hard battle a fresh water-supply was secured, and the family have since remained healthy.

Another of these "mysterious visitations of Providence" (why will men be so blasphemous!) happened in the family of a wealthy farmer and manufacturer of "phosphates." His beautiful house stood not far from his factory, where old bones, South Carolina rock, and decayed fish were treated with acid and mingled with sandy loam to form a highly odorous compound which assailed our nostrils as we whizzed by daily in the cars. Remonstrances and protests were in vain; it was not until sickness and death in his own household taught him, that the greed of money-getting was brought into obedience to sanitary laws.

Another instance occurred under my observation in the family of one of the wealthiest citizens of Philadelphia. At his beautiful country-seat north of the city, an old cesspool which had long been unused and covered, was opened and cleaned. Within a few weeks his two daughters were brought to the brink of the grave by typhoid fever of the most virulent type, which was communicated to the children of one of them, who was married, by infection. This whole outbreak I carefully watched. It lasted through three months, and was due, I believe, to air allowed to enter the house through a sewer-pipe which communicated from the closet to the old cesspool, up which a draft was created when the cesspool was opened.

Such are a few of the facts that I have observed. How easily might we avoid such death-dealing provisions, and yet how careless we are about them; nay, how incredulous, how disposed to go on in careless, slovenly, hap-hazard ways, how apt even to resent the impudent interference of those who presume to tell us how we ought to live, and to retort upon them that it is well enough to tell folks in the country how to live when we have brought our standard of health in the cities up to the level of the country. But I am sure I shall be borne out by the experience of every country physician when I say that such diseases as typhoid fever,

diphtheria, scarlet-fever, and measles have quite as many victims in the country as in the city. There is many a household with a vacant chair by the hearth in every neighborhood in our broad land, which can also testify to the terrible truth of what I have been saying. Nor is the subject exhausted. I have merely touched lightly upon one phase of it. Every farmer knows the effect of badly ventilated, over-crowded, filthy stables and surroundings on the health and growth of his stock. He may buy improved breeding animals, but their produce soon runs down even below that of the hardened natives, who have in the "struggle for existence" survived the privations and squalor which too often prevail in our barns and cattle-sheds; and then he turns round to abuse the breeder who sold him such animals, instead of setting to work to remedy the defects he knows of at home but too well.

And while speaking of this, I wish to say a word on ventilation. This does not mean a *gale* blowing *always* through the building. It means regular, but quiet, almost imperceptible but continuous, change of air in due proportion to the occupants of a given space. The freer the supply the better, provided these conditions are maintained. Our domestic animals, as well as ourselves, need shelter from cold and from heat, and from the wet. They, as well as we, suffer from too close quarters and want of sunshine. They, as well as we, suffer draughts and insufficient protection from the wet. We curry our horses, and their sleek coats and gleaming eyes reward our care. We neglect our cows, and their mangy coats and gaunt sides tell of the difficulty they have had to struggle through the winter. We neglect our sheep-pens, and the half frozen little lambs start in existence feebly, or die as fast as foundlings in a hospital from their exposure. Nay, too often our own families are allowed to live huddled together in close rooms around a scanty fire or a hot stove, with damp garments or leaky shoes, till colds run into consumptions, aggravated by insufficient or badly prepared food. And then we rail at the hard times and the bad weather and the poor crops, instead of applying our common-sense to stop leaks, to prepare healthy food, to mend torn garments, to earn healthy appetites and sound sleep by hard work. But all this is digressing from my subject, apparently; and yet it is essentially bound up in it. Healthy homes and how to make them,—that means happiness and prosperity. We need food, air, light, heat, and water. We need these pure and abundant. We cannot exist long in health without them. We cannot do good work without them, and therefore we cannot prosper without them. Whatever tends to improve our supply of these necessaries of life and existence tends to our good. Why should we be so slow to lay hold of the results of all of our experience in our every-day life?

## MILK, MICROBES, AND CONSUMPTION.

A committee of the Canadian parliament has just published a report of its investigations, which is likely to attract wide attention. The committee was appointed to inquire into the existence of tuberculosis in domestic animals, with special reference to the question whether the disease can be communicated from such animals to human beings. The opinions of leading physicians throughout the Dominion were procured, and these have convinced the committee that the disease is communicated to man by means of the meat of tuberculous cattle and the milk of tuberculous cows. This view of the subject is not confined to our Canadian brethren by any means. We read in one of our recent California exchanges that in his address to the Butchers' Protective Association, C. A. Mercer, the government agent of the Bureau of Animal Industry, said,—"It will be two years before this country can be thoroughly cleansed of diseased cattle, for, from San Francisco bay to southern California, one half of the state's stock is rotten. Out of every 100 consumptives, twelve acquire the disease from drinking the milk or eating the meat of consumptive cows." The recent Consumption Congress in Paris also adopted resolutions as follows: "The seizure and destruction of all tuberculous animals, whatever may be their appearance of health, should be a constant practice. Every effort should be made, by means of circulars, lectures, etc., to warn the laity of the danger of acquiring tuberculosis by the use of the flesh and milk of diseased animals." It is generally admitted by leading physicians that many diseases are directly caused by the introduction into the human system of the microbe or bacteria characteristic of those diseases, though it does not follow that the introduction of the specific microbe will necessarily cause the disease it is related to. A person exposed to the action of these disease-producers may be so healthy as to escape their effects. On the other hand, he may inherit such a special susceptibility to a disease that when its peculiar microbes are introduced into his system they find the conditions perfect for their rapid multiplication and harmful activity. Dr. Austin Flint goes so far as to assert that "it is probable that a person with an inherited tendency to consumption would never develop the disease if he could be absolutely protected against infection with the tubercle bacillus; but once infected, the bacteria multiply and produce the characteristic signs and symptoms." The bacilli often possess wonderful vitality. It is well established that intense cold does not kill them. For this reason there is danger in using ice that has been taken from streams into which sewage is discharged. But they cannot survive exposure to great heat. Therefore the boiling of contaminated water makes it harmless. There is abundant evidence

that cows are often tuberculous while seeming to be healthy; and within the past two or three years veterinarians have been impressed by the prevalence of this disease in herds of beef cattle as well as on dairy farms. There is trustworthy evidence that consumption may be and is communicated from such animals to man by means of beef and milk. The only secure methed of preventing infection from these sources is by exposing the beef and the milk to intense heat—by thorough cooking and by boiling—and by careful and intelligent inspection of beef cattle and dairy cows. The sooner the government takes the matter of beef inspection in hand, the better it will be for the whole community. The proposition has been extensively advocated by the *American Analyst*, and we are gratified to find our contemporaries of the press and the public sense generally adopting our views with eager earnestness. We may not go so far as the chief of the veterinary school of the University of Pennsylvania, Dr. Hindekoper, who recently declared his belief that nearly one half of the deaths from consumption in this country were the direct result of eating tuberculous beef. But we consider it fully established that, as the New York *Times* says, "Many deaths due to this disease are primarily caused by the introduction of the tubercle bacillus into the human system from the beef of tuberculous cattle and the milk of infectious cows." If ever there was a subject that demanded the prompt attention of congress it is this one of the establishment of a corps of national beef inspectors, to be placed on duty at every great cattle centre and slaughtering depot in the United States.—*American Analyst.*

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## INFLUENCE OF CONFINED AIR IN CAUSING CONSUMPTION.

Although it is now generally admitted that consumption, or pulmonary tuberculosis, is a parasitical disease, we should not lose sight of those auxiliary influences which increase the receptivity of the body for the infection, and when infection has already occurred, make the patient a readier victim for the invading bacilli. One of the most potent of these accessory causes is undoubtedly close, confined, and rebreathed air; and those physicians who have gained any special reputation for success in the treatment of this class of diseases have had a very clear appreciation of this fact, and have persistently urged their patients to live in the open air. A while ago Dr. Brown-Sequard read a paper before the Academy of Sciences, confirmatory of the bad effects of confined air and of the good effects of fresh air. He narrates that in 1869–'70 he inoculated subcutaneously a hundred guinea-pigs with tuberculous virus, without the loss of a single animal; but the cages were kept continually hanging in the open

air of the garden. Another series were inoculated in the same way, but they were condemned to have their cages remain in the close air of the laboratory. Nearly all of these died tuberculous. He cites also the histories of many men who had been in the cavernous stage of consumption, but who recovered completely after living and sleeping two years continually in the open air.—*The Sanitary Inspector.*

## LIFE INSURANCE.

Instead of merely hammering at a man's chest to find if he has a tendency to any disease, would it not be well for the medical examiners of life insurance companies to inquire if he has a cesspool leaking into his well, or untrapped pipes beneath his basins and closets ?

If insurance officers would give this subject their attention, they might save many losses to their companies, and also benefit the public generally ; for if men found that their homes were rated as " hazardous," they would soon begin to think of finding a remedy for the difficulty.

—*Monthly Bulletin, R. I.*

## THE BACILLUS OF TYPHOID FEVER.

An inquiry lately made by Dr. Brouardel into the circumstances of an outbreak of typhoid fever at Compiègne, led to the discovery of a bacillus in the water which the victims used for drinking. This is the well known bacillus which, when cultivated in gelatine, multiplies in colonies ; and a similar germ was found in blood drawn from a patient suffering from enteric fever. It had probably come from the water-closets, which were established in a sandy, porous soil ; beneath this was a layer of compact clay, through which the water drained into the well. The bacilli were much more numerous in the infiltrations of the sandy layer, a purification apparently taking place there which left the well-water limpid, without any impure taste. This fact proves that in the filtration of sewage water through the soil, certain organic matters may be retained, whilst dangerous bodies are allowed to pass.

—*British Medical Journal.*

A Boston girl was thrown from her carriage, and, in reply as to whether she was hurt, said,—" I really believe I have fractured the extensor ossis metacarpi pollisis manus." She had broken her thumb.

Pat (anxiously)—" Moike, are yez dead ? Ef yez are, shpake."
Moike—" No, oi 'm not dead, but oi 'm knocked spacheless."

# DOMESTIC VARIETIES.

## Is There No Remedy?

Everybody laughs at the absurd story of the country bumpkin who, when he took a grist to mill on horseback, always put a stone in one end of the sack to balance the grain in the other end, because he had been taught when a boy to do so, and failed when he became a man to observe that his neighbors did differently, or to discover that there could by any possibility be a better way. The country bumpkin of the fable is, however, but a slightly caricatured representative of the average individual. Do not thousands of men and women, considered more than ordinarily bright and quick-witted, carry with them through life their early acquired habits and peculiarities? And are we not all acquainted with people of intelligence and refinement, who have for years mingled with the best society, but still retain the improper pronunciation of words, the ungrammatical forms of speech, and the uncouth personal habits they acquired in early life? In a large number of human beings the perceptive faculties, noticeably the faculties of sight and hearing, seem to be intensely dull and sluggish. For any practical purposes the eyes and ears of a vast majority of men and women might as well be closed to what is passing in the world around them. They fail to take any notice of the things with which they come in almost hourly contact. They learn in childhood to say and do things in a careless, slip-shod manner, and continue always to say and do them in the same manner. They never perceive any difference between their imperfect methods, and the better methods of those about them. They fall into certain ruts, and remain in them. Their non-compliance with established usages and customs, with what are known as "social proprieties," escapes their observation. Or, if they actually see and hear, they are for some reason unable to retain and assimilate the fruits of their perception. It is difficult to understand such apparent stupidity. But there is no denying the fact, a large proportion of all classes of people are lacking in perceptivity, and take no notice of the things that are closely connected with their every-day affairs, and intimately concern their comfort and happiness. To see and hear intelligently is the exception rather than the rule, and the want of thoroughness that is so deplored in every department of life is in a great measure the result of this lack of capacity to see and hear. Will human eyes and ears ever be educated properly, and used faithfully? Or is there no remedy for the generally prevalent obtuseness of these faculties?—*The Kitchen.*

The prize of $500, offered by Mr. Henry Lomb, of Rochester, N. Y., for the best essay on "Practical Sanitary and Economic Cooking Adapted to Persons of Moderate and Small Means," was awarded to Mrs. Mary Hinman Abel, an American lady who is at present with her husband in Germany.

This essay is the practical application of a scientific knowledge of the food principles, and is amply illustrated by recipes in each department. It will be published soon.

The second prize of $200 was not awarded.

### In Self-Defence.

The most intelligent classes, who obey the teachings of sanitary science, are best fitted to survive. Any narrow selfishness, however, which might be engendered in one of this most intelligent class, by dwelling upon the idea, is soon dispelled when he comes to see that not only is each person to some extent his brother's keeper, but he is dependent on all about him for immunity from dangerous communicable diseases, and for safety of life and health in various ways. The highest self-interests thus join with the highest benevolence in favor of the widest possible diffusion of sanitary knowledge, and of the most complete obedience to sanitary precepts, ordinances, and laws.—*Dr. Henry B. Baker.*

### Children's Sleeping-Rooms.

If every housekeeper would insist that the occupants of her apartments —children, help, boarders, and visitors—should air their beds and throw open windows each morning before leaving their rooms, unless beating storms made this impracticable, we should have less ailments of lungs and liver and nerves in our midst. To breathe, night after night, unclean, vitiated air is enough to poison and disease the soundest lungs and undermine the strongest constitution created.—*The Home.*

### How to Peel Tomatoes.

It is so customary, in preparing tomatoes for the table, to peel or skin them, that we naturally jump to the conclusion that any one can peel tomatoes. But such is far from being the case. Nearly all cook-books substantially say, "Pour boiling water over ripe tomatoes, then skin them," and at least ninety in every hundred persons attempt to peel them in this manner, and consequently do it very imperfectly. This is the proper way to peel tomatoes: Cover them with boiling water half a minute, then lay them in cold water till they are perfectly cold, and the skin can be peeled off without difficulty, leaving the tomatoes unbroken, and as firm as before they were scalded.

Always remove the contents of tin cans the moment they are opened. It is positively dangerous to leave canned goods in the open cans. The action of the air upon the soldering of the cans forms an oxide which renders the food unfit for use, cases of poisoning from this cause being reported from time to time.

Do not forget that if you accomplish a little every day it will amount to a good deal in a year. If you pursue some study, or read one hour every day in the year, you will have acquired an amount of knowledge in three hundred and sixty-five days that will surprise you. Bear this in mind now, early in the year, and let nothing prevent you from taking advantage of it.

## Mankind's Mistakes.

It is a mistake to labor when you are not in a fit condition to do so.

To think that the more a person eats, the healthier and stronger he will become.

To go to bed at midnight, and rise at day-break, and imagine that every hour taken from sleep is an hour gained.

To imagine that if a little work or exercise is good, violent or prolonged exercise is better.

To conclude that the smallest room in the house is large enough to sleep in.

To eat as if you only had a minute to finish the meal in, or to eat without an appetite, or continue after it has been satisfied, merely to satisfy the taste.

To believe that children can do as much work as grown people, and that the more hours they study the more they learn.

To imagine that whatever remedy causes one to feel immediately better (as alcoholic stimulants) is good for the system, without regard to the after effects.

To take off proper clothing out of season simply because you have become heated.

To sleep exposed to a direct draft in any season.

To think that any nostrum or patent medicine is a specific for all the diseases flesh is heir to.—*Index.*

Every morning, when the German housewife receives her quart of milk, she immediately places it over the fire and brings it to a brisk boil. Boiled milk is not relished by many who are not accustomed to it: but most people come to like it decidedly after they have used it a short time. In view of the fact that milk may be the medium for the transmission of several diseases, we should do well to adopt the foreign custom of sterilizing it.—*Sanitary Inspector.*

### Little Boys, by a Little Girl.

Boys is men that have not grown as their papa, and girls is young women that will be young ladies by-and-by. Man was made before woman. When God looked at Adam, he said to himself,—"Well, I guess I can beat that if I try again," and then he made Eve. God liked Eve so much better than he did Adam that there has been more women than men in the world ever since. Boys are a trouble; they are very wearing on everything but soap. If I could have my way, half the boys in the world would be little girls and the other half would be dolls. My papa was so nice to me that I guess he must have been a girl when he was a little boy.—*Chatter.*

### The Use and Abuse of the Brain.

Anxiety causes more brain disorders than any other agency I know of, unless it be love. Many jokes are made about the gray matter of the brain, but I will say right here that I have a great respect for the gray matter of the brain. There is no higher organism than that. It is the grandest organ in man, and were I ever to worship anything, it would be a portion of the gray matter of the brain. It is well for us to know that the emotions cause more unhappiness and crime than any other function of the brain. Human beings are governed by their emotions, and it is well that they should be, though it is the emotions that wear away the brain, and not honest intellectual work. Very few people suffer from intellectual work, and if my memory serves me, I do not recollect ever having a mathematician for a patient. It is not intellectual work that causes nervous dyspepsia, but the emotions, such as anxiety, fear, sorrow, and love. I consider that eight hours are sufficient for a man to use his brain, because if he exceeds that time he becomes nervous and fretful, and an exhausted brain is an irritable brain. You may not feel the evil effects of the stress of brain work at the time, but you will, sooner or later, when it is too late. The men that work at night with their brains are the ones that expose themselves to danger and death, which will surely come unless the great strain on the mind is lightened.

—*Dr. William A. Hammond.*

### How To Detect Lead in Water.

The salts of lead may give rise to serious symptoms, among which may be mentioned colic, gout, rheumatism, kidney disease, paralysis, blindness, and even insanity. The physician may feel quite at a loss to account for these phenomena until he detects lead in the water his patients are accustomed to drink. The test is very simple. Water containing even a trace of lead will be turned blue on adding a little of the tincture of cochineal.

THE

# SANITARY VOLUNTEER

VOL. 1. FEBRUARY, 1889. NO. 2.

## SANITARY AND OTHER NOTES.

The first number of the SANITARY VOLUNTEER received a welcome from the public far beyond our most sanguine expectations. The press of the state bestowed upon it very complimentary notices, and we have received strong and earnest letters of indorsement from some of our ablest and best known citizens. Such assurances of appreciation give a moral support that is not only welcome, but essential to success.

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From the assurances we had prior to issuing the January number of this journal, we calculated upon a circulation of 3,000 copies a month. We are already obliged to increase our number with this issue to 3,500 copies.

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The *Medical Record* says that it is stated that the United States government has paid more money in the investigation of the disease of hogs than it has for all the diseases affecting the human race. Evidently the hog is still ahead.

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The Weirs Water-Works Company was organized January 15, under a charter granted at the last session of the legislature. The company hope to commence operations in the spring. A substantial and permanent system, ample for years to come, is contemplated. Its need, at this noted place of summer resort and conventions, has long been apparent.

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The State Board of Health has on hand a few extra copies of all the reports it has issued excepting Vols. 1 and 2. Copies will be furnished upon application, till exhausted. Public libraries should see that their sets are complete.. By and by it will be impossible to obtain these reports.

Town and city authorities should remember that the law requires them to include in their printed reports a record of all the births, marriages, and deaths that occurred within their jurisdictions during the preceding calendar year. The law went into effect last year, and was very generally observed, thereby making the reports of unusual value, as was evidenced by the fact that they were more frequently called for than hitherto by persons interested in preserving them on account of this special feature. Town-clerks can obtain blanks on which to make transcripts for the printer by addressing the Registrar of Vital Statistics, Concord.

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Look out for the traveling doctor who performs wonderful cures, and remains at such a hotel a day or two, and then goes on to his next place of engagement. There are a few of this class who operate in this state. The faces of one or two are familiar in the advertising columns of the newspapers, and are also stamped upon the lying handbills which they distribute about town. Without exception, so far as we know, these travelling "doctors" are polished quacks, unmitigated frauds, and dangerous shysters, which every invalid should avoid. They violate the law of the state, impose upon the credulity of humanity, and pocket the dollar, like any other swindler. Beware of them.

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An eminent English authority once said that whenever there was a case of typhoid fever somebody ought to be hung. Another writer has said that the time would come when a case of typhoid fever would be regarded with as much stigma as a case of the itch. These expressions were, of course, intended to emphasize the fact that the disease is dependent upon filth in some form, and that some one is responsible for its being drunk, eaten, or inhaled, as the case may be. The public understand this idea sufficiently well to remark, upon the appearance of the disease, that "there must be *something* wrong with the premises." Every family should be on guard lest this imputation rest upon it.

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No man in the Union has ever received more severe or more justly merited criticism and condemnation than the recently retired governor of Florida for his criminal negligence last summer to call a session of the legislature for the purpose of creating a state board of health, as was demanded by the people and recommended by the national health authorities. To his obstinate refusal may be credited many of the deplorable results that followed the outbreak of yellow-fever at Jacksonville. No wonder public indignation in Florida was so thoroughly

aroused. The newly inaugurated governor is a man of entirely different calibre. Almost his first act was to call a special session of the legislature for the sole purpose of creating a state board of health. Such action is very gratifying even at this late hour, and is appreciated, not only in Florida, but by many citizens of the North who have capital invested in that state.

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Mayor Varney, of Manchester, in his inaugural address, recognizes the importance of guarding the public health, and especially in protecting the school children. He also advises that the sewer system of the city be still further improved. In treating of these subjects he says,—

A plan of our system of sewerage has been completed, embracing the whole city proper. Hereafter all sewers put in will be in accordance with this plan. As the city is extending its borders in all directions, a large amount of new sewerage will be called for this year. There remain about nine miles of the old sewer pipe, part of which will require to be renewed this year. A due regard for the health of our city requires that this part of our duty should not be neglected.

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Especially should we provide, as far as lies in our power, everything necessary for guarding the *health* of the children attending our schools. In this connection I will say it has been suggested to me that the four-room school building on School street in West Manchester, where there is an attendance of nearly two hundred pupils, is unfit for occupancy by reason of defective sanitary appliances. It will become our duty to give careful consideration to any recommendation of the school board in this particular case, or in other cases of a like nature.

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The Yellowstone park is perhaps destined to be as well known for its sanitary advantages as for its wonderful scenery and marvellous formations. A partial analysis of its mineral springs has been made by Prof. F. A. Gooch and J. E. Whitefield of the government geological survey. Forty-three analyses of the more noteworthy waters have been published. They show a great variety of mineral qualities, and in temperature vary from great cold up to the boiling point. It would seem from the report that there are opportunities offered for the utilization of medicated baths not elsewhere found in this country. Some of the boiling springs contain large quantities of ammonium sulphate, sulphuric, hydrochloric, and boric acid, alum, the alkalies, etc.

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One of the highest compliments given the January number of the SANITARY VOLUNTEER was from one of the leading sanitary journals of

this country, and consisted in transplanting *four* of our editorials directly into its own *editorial* columns without credit or allusion to the SANITARY VOLUNTEER. Should this transplanting process continue, we would respectfully ask the journal, to which allusion is made, to give us credit whenever it uses *over* half a dozen of our editorials as its own, in any one issue.

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The Amoskeag Corporation of Manchester has authorized the vaccination of its 8000 operatives. The corporation bears the expense. This is a timely move in the right direction, and an act that ought to be carried out by many other corporations in the state, for their own protection as well as for the good of the laboring classes and the public.

The prevalence of small-pox in the United States is at present on the increase. The only protection known against this terrible disease is vaccination, and by its means every community may be thoroughly protected against the infection of small-pox. Vaccination is a sacred duty that should not be overlooked.

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Regarding the subject of small-pox, we have received a communication from the secretary of the Ohio State Board of Health, dated January 19, in which he says,—"We desire to call your attention to the present danger of small-pox becoming widely prevalent in our state. At this time there are known to us five centres of infection in Ohio, and it is possible other cases exist which have not been reported. Near New Washington, Crawford county, there are five cases, and two have died of the disease; there is one case at New Holland, Pickaway county, one at North Solon, Cuyahoga county, one at Oberlin, Lorain county, and one at Ashtabula, Ashtabula county. At Oberlin, before the disease was recognized, over twelve hundred students in the Theological Seminary were at a lecture attended by the patient, and at Ashtabula, children from the patient's house attended school for several days before the facts were made known to the board of health. Every precaution is now being taken to prevent the disease spreading from these cases, but, from the number of persons exposed, other cases may be expected."

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## LEGISLATION ON INSANITY.

The National Conference of Charities and Corrections has appointed a committee to examine into the existing laws in New Hampshire in reference to the insane, and to make such report or suggestions to the legislature as may be deemed best for that unfortunate class. The com-

mittee is as follows: Hon. James W. Patterson, Hon. W. S. Ladd, Hon. W. L. Foster, Dr. Irving A. Watson, and Hon. David Cross. A committee for a like purpose has been appointed in several other states.

## HOW AN EPIDEMIC OF SCARLET-FEVER WAS PREVENTED.

The following facts, which occurred last month in one of the larger towns in the state, show conclusively how the spread of scarlet-fever may be restricted by a determined health officer. Scarlet-fever appeared in a family living in a community in which there were nearly fifty children in the immediate vicinity of the infected family. The children of this family were at once taken from the school they were attending, and another member or two who labored in a factory requested to stay at home during the continuance of the disease. The head of the family was rebellious, and declared he would not submit to such regulations. The health officer closed up the rear entrance to the house, and stationed a man at the front door, or near by, to see that the quarantine ordered was properly maintained. A physician was furnished who did his duty. The children, after a severe illness, recovered, the premises were disinfected, the quarantine raised, and the disease stamped out without another case.

So much as a result of efficient work by an officer who recognized his duty in the case, and did not hesitate or fear to perform it. Twenty or thirty cases with several deaths might have come from this outbreak but for the vigilance and fidelity of this health officer. This is an illustration of what might be done in almost every instance where the disease appears.

Scarlet-fever should be feared as much as small-pox, and the outbreak of the disease should arouse local health authority to as much activity as would follow the advent of the latter disease.

## EFFICIENT ACTION BY LOCAL BOARDS OF HEALTH.

In looking over the reports for December from local boards of health to the state board, we find that in some towns we have very efficient boards, and the promptness and decision with which they act upon the outbreak of contagious diseases is to be most highly commended. The following extracts merit notice, because they show how energetically the cases were taken in hand.

"Scarlet-fever, one case; closed the school in the district, and isolated the family."

The person taken with the disease being a pupil, this was the proper course to take. Isolation of the family was equally necessary.

Another health officer reports: "Diphtheria, one case; fatal. Funeral strictly private, and clothing cleansed and disinfected. This case was brought from Massachusetts. No other cases have appeared." If such prompt and active measures were taken with every case of diphtheria, the loss of life from this terrible disease would be very much less.

Another faithful health officer, in a sparsely settled town in a remote part of the state, writes,—"There has been no case reported during the month of December: it is a general time of health in this vicinity. I have visited quite a number of sick people, and have tried to have them see the benefit of good air, clean beds and clothing, and keeping everything clean that is used about the sick-room." If every town in the state had such an interested and trusty health officer, sickness would be greatly reduced, and our death rate materially lessened.

On the other hand, we have now and then a board of health which is not so active, and which seems to rely upon good luck to carry it through any threatened disaster. Such a board reports as follows: "Diphtheria, one case, it being a mild case, no action was deemed necessary." It is well known that a malignant and fatal form of the disease is not unfrequently contracted from a mild case: hence such a view as this board expressed is not for a moment tenable. Every case of diphtheria and scarlet-fever, mild or malignant, should receive prompt attention in respect to isolation, disinfection, and all other known precautions against its spread.

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## BURNING SULPHUR IN THE SICK-ROOM.

The practice, often prevalent, of burning sulphur in the sick-room, or in the habitable rooms of the house, during the continuance of a case of diphtheria or other contagious disease, is productive of evil, and should never be allowed. We have often found the air almost irrespirable from this cause, practised under the belief that the continual burning of a little sulphur would destroy the germs or poison of the disease, and thereby protect those of the household not already infected. This theory is wholly an erroneous one. Many experiments have been made, which show that the density of sulphur fumes (sulphurous acid) must be much greater than can be tolerated by a human being, in order to destroy the germs of disease.

The air of the sick-room, bad enough at the best, should be kept as pure as possible; it should not be vitiated by the fumes of burning sulphur. The latter acts as an irritant to the air passages, against which the lungs protest, besides consuming some of the oxygen of the air which is so necessary to the support of life, thus doing a positive harm to the patient. Still more, it impairs the natural powers of resistance to dis-

ease, and thereby indirectly becomes an agent to bring about a condition its use is popularly supposed to retard.

Sulphur fumigation will not destroy the germs of disease, unless a large quantity is burned in closed rooms, and the process continued several hours; therefore its use as a disinfectant should never be attempted except in this manner. Agreeable deodorants may be used in the sick-room, and disinfectants in solution should always be employed, but by no means resort to the practice of burning sulphur.

The following is the correct method of fumigating with sulphur, and the only one of practical value in infected dwelling-houses.

The house must be vacated. Heavy clothing, blankets, bedding, and other articles which cannot be treated with disinfecting solutions, should be opened and exposed during fumigation, as directed below. Close the room as tightly as possible, place the sulphur in iron pans supported by bricks placed in wash-tubs containing a little water; set the sulphur on fire by hot coals, or with the aid of a spoonful of alcohol, and allow the room to remain closed for twenty-four hours. For a room about ten feet square, at least three pounds of sulphur should be used; for larger rooms, proportionally larger quantities. Heavy woollen clothing, silks, furs, stuffed bed-covers, beds, and other articles, which cannot be treated with fluid disinfectants, should be hung in the room during fumigation, their surfaces thoroughly exposed, and pockets turned inside out. Afterward they should be hung in the open air, beaten, and shaken. Pillows, beds, stuffed mattresses, upholstered furniture, etc., should be cut open, and their contents spread out and thoroughly fumigated. Carpets are best fumigated on the floor, but they should afterward be removed to the open air and thoroughly beaten.

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## PTOMANIC FEVERS AND OTHER DISEASES FROM POOR VENTILATION.

In the last report of the Illinois Soldiers' Orphans' Home, Dr. N. B. Cole, physician in charge, reports, in the list of diseases treated during the year, twenty-four cases of "fevers of ptomanic origin." The remarks he offers, in respect to over-crowding and non-ventilation, are applicable to institutions in other localities than Illinois. After mentioning a large variety of diseases that occurred in this institution during the year, he says,—

The over-crowded condition of the institution is, no doubt, responsible for many of the ailments mentioned. A vitiated atmosphere is very often met with, both in day and dormitory rooms, due largely to the crowded state of the building.

From 60 to 100 cubic feet for each child is the limited space allowed, and with no facilities for the removal of foul air other than by doors and windows.

The large number of ailments occurring and recurring so often, such as the eye diseases, glandular enlargements, nausea, etc., mislead us when we suppose that contagion is the cause. These diseases are, without question, mainly caused by living in a poisoned atmosphere—the poison consisting of ptomaines given to the air of the rooms from lung and body exhalations; and in order to do away with the ailments in a great measure, there should be some effective system for the constant supply of warm, fresh air. All the automatic systems are untrustworthy, when so many are to be supplied. An exhaust shaft would supply twice the air at zero that it would at 35°, when 70° is required as the indoor temperature. Every occupant, however, needs as much air at one time as at another, and if it were possible to utilize the two large chimneys for exhaust, the supply, at best, would fall short of the requirements, and be constantly varying with the temperature of the weather. A fan to supply with would more nearly answer the purpose, and then a great advantage would be gained by heating the air to the required temperature before it was admitted to the rooms, thus doing away with cold, and often damp, floors.

It is self-evident that if one person requires a certain number of cubic feet of air, to support life and maintain good health, every minute, one hundred would demand a hundred times as much as the one person. For rooms occupied as many hours continuously as at this institution, a larger supply is necessary than if occupied only an hour or two daily, and the amount of fresh air provided should not be less than twenty cubic feet per minute for each child. Twice that amount would fail to preserve a healthful atmosphere, yet either amount mentioned would so far exceed the present supply, that, if supplied regularly and with certainty, night and day, the blessing would more than equal the bountiful supply of food and raiment, now so carefully looked after. At all events, during the winter months, while the children are housed up, any amount of fresh, warm air, approaching the requirements of a health limit, if furnished, would, in a financial view of the case, be a step toward economy, as the food supply alone, to say nothing of the comfort and health, would be enough less in demand to pay for the extra fuel to warm the air.

The above report was made in July last, since which time marked results have been attained, in diminishing the diseases alluded to, by means of better ventilation. In a private letter from Dr. Cole, written Dec. 29, in referring to the institution, he says,—"I will only say we have no sore eyes, no eruptive skin diseases, but up to date, and due to

the very mild weather, a fair ventilation. The history of the institution shows it was never as free, or anything like as free, from eye and skin troubles as for the last six months, and all due to the exercise of a little common-sense in the admission of fresh air. Our ventilation, however, is very imperfect, and rough weather will show the effects of overcrowding, soon, no doubt."

We present these facts as incontrovertible evidence of the necessity of good ventilation in charitable and other institutions, in which a considerable number of persons dwell. Especially is this lesson applicable to our almshouses, asylums, and schools.

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## DIPHTHERITIC PNEUMONIA.

The health departments of New York, Brooklyn, and some other localities show a large increase in the mortality from pneumonia. Dr. William H. Thayer, of Brooklyn, in writing upon this point in a recent number of the *Medical Record*, says,—

"I wish to suggest that there is no evidence that simple lobar pneumonia is more frequent than it was thirty years ago, or more fatal. At that time, under the rational treatment in vogue, simple, uncomplicated lobar pneumonia in the adult was very rarely fatal. I know no reason to think it is more often fatal now under the same treatment. But the deaths by pneumonia reported of late years include not only the large number of cases supervening upon chronic diseases of other organs than the lungs, and the pneumonia of children and aged persons, which have always furnished the chief part of the fatal record, but they also include many cases of diphtheritic pneumonia not recognized as such. I think that before long evidence will be generally accepted that the increase in the reported mortality by pneumonia is due to diphtheria of the lungs, and not to any increase in idiopathic pneumonia. This opinion is based upon observations of diphtheritic pneumonia of considerable prevalence in other parts of the country, and which further investigation will probably show to be present in some degree in this vicinity."

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## THE PITTSFIELD WATER-SUPPLY.

To satisfy some inquiries that have been made relative to the public water-supply at Pittsfield, the State Board of Health, last month, directed Prof. E. R. Angell to make a sanitary analysis of a sample of water taken from the pipes of the Pittsfield Aqueduct Company. A prior examination of a sample taken from a low place in the pipes, where heavy

substances might settle by force of gravity, showed 3.8 grains of solids to the gallon, with some harmless microscopic growths. The analysis just made is as follows:

| | |
|---|---|
| Odorless. | |
| Color, | Slightly yellowish. |
| Evaporation, | Little foamy. |
| Residue, | Little residue, few patches. |
| Ignition of residue, | It darkens some. |
| Total solids, grains per gallon, | 1.4 |
| Volatile and combustible matter, | 0.3 |
| Hardness, degrees, | 1.0 |
| Alkalinity, " | 0.75 |
| Chlorine, grains per gallon, | 0.1 |
| Ammonia, parts per million:— | |
| Free ammonia, | 0.02 |
| Albuminoid ammonia, | 0.09 |
| Nitric acid, | Very slight trace. |
| Nitrous acid, | None. |
| Lead, | None. |
| Iron, | Trace. |
| Sediment, | Very little. |
| Microscopic examination, | Nothing significant. |

This is excellent water.

This water is remarkable for its purity, and we are safe in saying that there is not a well in the town that contains water of so good a quality for drinking purposes. With this splendid water, and good drainage and sewerage, typhoid fever and other forms of filth diseases would have to look elsewhere for a foothold. Every citizen of the town within reach of this supply should abandon the use of well-water. Few towns are so greatly favored in this direction as Pittsfield.

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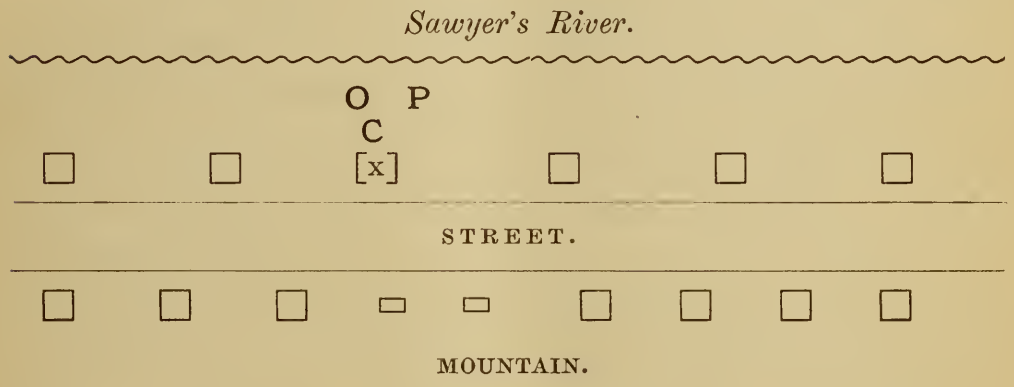
## TYPHOID FEVER AND FILTH.

We have just received a very interesting and instructive report from Dr. Edwin M. Ground, of Bartlett, upon fifteen cases of typhoid fever treated by him during the past season. Ten of these cases were in Bartlett, four in Livermore, and one in Jackson. The report shows under just what conditions typhoid fever will thrive, and how a little intelligent care would have prevented every case. Dr. Ground says,—

Fourteen of my cases could be traced to a contamination of the water-supply. I will cite Livermore as a fair example of the source of all cases coming to my knowledge during the past season. In the first place, it must be remembered that Livermore is situated on the side of a mountain, and that the inclination toward Sawyer river is very abrupt.

We begin at the river. Running parallel with the river is situated a row of dwellings, numbering ten or twelve, then the street, and another row of dwellings. Each dwelling has a privy located at variable distances of a few feet in the rear. X marks the house where the disease first originated. O, in the rear, and just by the side of the river, marks the location of the spring (cesspool would be more appropriate) which furnished the water for all the dwellings marked. P, the privy, and C represents several feet of surface upon which the kitchen waste was thrown; and this amounted to a great quantity, as the building was used for a boarding-house. Across the street, directly opposite, are two stables, with manure heaps three feet high. When we take into consideration the abrupt inclination of the ground toward the spring, the relative location of the stables—the refuse from which has been accumulating for years—not more than 100 feet away, the privy located not 20 feet from the source of water-supply, which had probably not been cleaned




☐ Dwellings. ▭ Stables. [x] House where first case appeared. O, Spring, the water-supply of the village. P, Privy. C, where kitchen waste is thrown.

out since it was built, and, finally, the several feet square of surface, deluged almost hourly with kitchen refuse and slops from a saw-mill boarding-house kitchen, passing its putridity by almost imperceptible gradations into the pool of water used by the occupants for cooking and drinking. Can we conceive of anything more impure and filthy? Is it to be wondered at that typhoid fever, so clearly traceable to unsanitary surroundings, should develop?

My other cases were just as clearly traced to unsanitary conditions as those originating at Livermore.

The cases in Bartlett all developed in persons who used the water from a well in close proximity to a manufacturing establishment. The water for the boiler was taken from this well, pumping it empty several times a day. The well is surrounded by privies used by the help, nearly fifty in number, and by decomposing bark and saw-dust. I consider that

pumping the well empty so often makes the current into the well more active and direct.

My case at Jackson was the second of a series of four. The first case that developed here I saw in consultation with the regular attendant. This lad was engaged in taking the kitchen waste away from a summer hotel.

The second case (my case) developed in a family that took their water-supply from a spring which received drainage from a hill-side upon which was thrown the kitchen refuse from the summer hotel referred to. Two other cases occurred among the help in this hotel, one proving fatal.

I do not pretend to say, neither do I believe, that typhoid fever can originate from filth or unsanitary conditions alone, but I do say that these conditions are necessary for the growth and propagation of the typhoid bacillus.

I do not believe in the sporadic or spontaneous origin of typhoid fever, or any other germ disease. Such a supposition is unphilosophical and unscientific. So called sporadic cases are so either from lack of inquiry or lack of information. It is no more possible for the germ of a particular disease to originate *de novo*, than it is for animal life of a higher order to originate spontaneously. We all know the story concerning the spontaneous production of mice; and the quicker the people fully appreciate the importance of putting and keeping their premises in a good sanitary condition, the sooner will we realize a diminution in the prevalence of typhoid fever and other preventable diseases.

Typhoid fever is as preventable as small-pox, and should, in fact, be as largely prevented.

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## SANITARY IGNORANCE AMONG HIGH AND LOW.

BY ALBERT L. GIHON, A. M., M. D.,

*Medical Director U. S. Navy, Ex-President of the American Academy of Medicine, and of the American Public Health Association, etc.*

It is a hazardous undertaking to set out to tell people how ignorant they are, and I risk some such another commentary as once reached me, *sotto voce*, from an indignant listener in an audience to which I was denouncing the hour-glass shaped abomination to which women cling as tenaciously as they make it cling to them,—"He would look a great deal better if he had one on himself!" Look thyself in the mirror which thou holdest before me, is not unreasonable retaliation upon the one who goes about pointing out motes in others' eyes. . . .

Whence is it, that in this nineteenth century of civilization and enlightenment there should be such a degree of sanitary ignorance as to furnish occasion for this sanitary revival? If I mistake not, this very civilization, especially this Christian civilization, of which we are so proud, is at the bottom of our want of knowledge and our misdoing. . . .

A well conditioned body must have all its parts well developed and be kept well nourished; and only such a body, so soundly constituted, can perform properly those functions whose sum is what we term life, and whose harmonious action is what we mean by health. A broken arm can as well wield a hammer as a morbid brain secrete healthy thought, or a diseased sensorium reflect a normal sensation. The *mens insana* is the product of perverted physical conditions, and in most instances these are imputable to human ignorance and folly. Man, then, being known to us by this bodily presence, which is creation's masterpiece, and which must be sound in structure in all its parts that these manifold offices may be well performed, one would think that no persuasion would be needed to make this self-conscious, reasoning creature zealously guard from harm this mechanism which makes him what he is; yet, in truth, this life of the body is one long course of shameful ill-usage, and it may be profitable if you and I reflect upon some of the instances in which, in common with our neighbors, we have wilfully neglected our bounden duty to ourselves. . . .

High and low, rich and poor, the wise man and the fool, rival each other in ignorance of the absolute need to health of a limitless supply of fresh, pure air. Their dainty stomachs will reject unsavory food, and their delicate hands shrink from the touch of unclean things, but they will greedily and recklessly take into their lungs, to be incorporated in themselves, viler nuisances than any of the visible filth they have smelt or touched or tasted; for, notwithstanding its aeraform condition, it is as much filth as the foetid ooze of the sewer or the solid putrescence of decomposition. The living germs of disease, the effete particles of human waste, microscopic impurities volatilized by heat and moisture, fill the air and are wafted to and fro by its ever shifting currents. To realize how these intermingle, watch the little clouds of condensed vapor which on a winter's day are emitted from the mouths and nostrils of a lot of fellow-passengers, to be again inhaled into some neighbor's lungs; and you all know how far, even in the open air, you can sniff the fumes of a rank cigar. . . .

What shall we say of that other product of modern civilization,—the unventilated school-house. I use the adjective as descriptive, not distinctive, for all school-houses are unventilated. The prowess and prestige of a race depend upon its physical vigor, and the foundation of this

is laid during its childhood and adolescence. One does not expect prolific fruits from withered branches, nor fine cattle from scrawny, ill-favored young; but the human race is recruited at the veriest hap-hazard. The male inheritor of a line of constitutional taint mates another endowed with kindred or dissimilar evil tendencies, and the resulting offspring are naturally cursed with both. Your daughter's fancy, which opposition only intensifies, selects as the husband of her choice one who bears within him the indestructible seeds of congenital or acquired disease, which will consume both her and her wretched offspring, and whom it were better she should die than wed. Your son's whim makes her the object of his passionate longings whose fragile body, stripped of the artifices of dress, caricatures that womanhood whose maternal duties she is unfit to assume, and whose marital responsibilities she is unable to fulfil. From sallow, attenuated, spindle-legged young men as fathers, and flat-chested, fleshless, weak-backed mothers, what manner of children can come into being? But the deplorable sanitary ignorance that leads to these results does not stop with this. As though the aim were to do the greatest possible harm to the greatest possible number, and thus retard over-population in a way Malthus never contemplated, even the hardy youngling is sent to school to be poisoned by bad air, and succumbs sooner than his feebler companions, whose very ailments make them tolerant of other harmfulness. To appreciate the unwholesome atmosphere the children of this day breathe, let any man or woman, with lungs fit to perform their healthy office—for the valetudinary is himself a poor judge of sanitary matters—enter a school-room after it has been an hour occupied. The mawkish odor of over-respired air, recognizable by one coming from out-doors, is not sensible to the superintendents and instructors who are themselves immersed in it, but its lethal influence is written, as the term advances, in the pallor and tired looks of themselves as well as the children, and is attributable to excessive study or application.

Now all this is not mere exaggerated fancy. Dr. Bryce, secretary of the Provincial Board of Health of Ontario, states that of the 5,000 children attending school in Hamilton in the year 1882, 600 were absent during the month of January, as many in February, in March slightly more, in April a few less, and in May, when windows could be opened and the fire in the stove was out, the number reported fell suddenly to fifty per centum of the previous month. In June it was still lower. In September, after the holidays, a small number only was reported sick. In October, when the fires began, the number ran up, and it crept up, until in December it attained the highest point in the year. One child in every ten had been made sick by going to school;—and this is not an unfair assumption when we know that the average floor-space of these

children was only eight feet—in one school only two and a half feet—a condition of things for which no degree of education can be compensation. . . .

Foul air, then, though the chief, is not the only insanitary abomination of our vaunted school system. Uncomfortable seats and desks torture and deform the plastic, undeveloped little bodies of children, many too young to be at school or at anything but play. Glaring white walls and dazzling lights staring them in the face, or from every direction but the proper one, badly printed books, with type and figures so small as to be illegible without effort, and compulsory night-work at home by artificial light, combine to impair their vision. Neglect of provisions for common necessities and decencies—latrines that a brute would shun; the enforced restraint of every natural gestural expression of the emotions and reflex actions, which constitute so great a portion of the child's mental and sensory nature; the physical overstraining of the intellectual organs,—these are all factors of evil; but the *princes malorum* is the confined, over-heated, and germ-laden air they are compelled to breathe over and over again. Instinctively one revolts at bathing in water which a single other predecessor has used; but we do not hesitate to attempt to cleanse the blood of its soilure in the air-bath of the lungs after a hundred others had contributed to befoul it.

I wish to give all the prominence and emphasis I can to this ignorance of the contamination by atmospheric filth, to which gentle folk, equally with the lowly, subject themselves in parlor, church, and school. Even though the dire effects of disease do not always immediately follow, disgust should prevent the cleanly man and woman deliberately admitting into their bodies the nastiness of human emanations, which are poured into the air from lungs and skin at the rate of three avoirdupois pounds a day by each individual. One hundred gallons of air pass through the lungs every hour, carrying with it at each expiration four per centum of its volume of carbon dioxide and its organic attendants; and the cutaneous is nearly twice the pulmonary. Dr. Kidder, in his microscopic examinations of the atmosphere, found that human epithelium was the one thing always present on his slides. The *New York Medical Record* states that while the number of bacteria averages 2,500 to the cubic meter of city air, there are 11,000 in the air of a city hospital. What, then, was the probable microscopic population of the air at a recent mass in St. ——'s church, in Philadelphia, which is described by one present as being literally packed, every foot of standing-room being occupied, without an opening for the entrance of fresh air, or for the escape of the foul air from heat registers, gas jets, wax tapers, and human lungs; all the vast assemblage being as though shut up in an air-tight box. A

hundred little boys and girls for two hours breathed this noxious atmosphere, to be then ushered into the cold rain out-doors. How many cases of diphtheria and pneumonia and scarlet-fever filled little coffins as the result of this one Sabbath's holy work? The immense aerial ocean in which we live purifies itself without man's aid, but when it is confined and its free diffusion hindered, its retained impurities quickly manifest deleterious qualities of the most virulent type, as the noted instances of the tragedy of the Black Hole of Calcutta, in which 123 persons died among the 146 confined in a room 18 feet square; the suffocation of 260 out of 300 Austrian prisoners after the battle of Austerlitz; the deaths of 70 of the 150 deck passengers battened under hatches on board the steamer Londonderry; and the "sweat boxes" of the men-of-war of thirty years ago, whose inmates were often found asphyxiated when the door was opened. Where the obstruction to the escape of vitiated air is not so great, the less conspicuous effects of air pollution are shown in headache, loss of appetite, indisposition to exertion, fitful, unrefreshing sleep, soreness of the body, aching limbs, general debility, and mental obtuseness, followed, after weeks or months of similar exposure, by more serious ailments.

Knowing that the silver and copper and other salts used by the oculist in drops of dilute solutions accumulate in appreciable quantities on the walls of the hospital ward, it is not hard to believe that minute scales from loathsome affections of the skin, volatile emanations from unclean or diseased bodies, the tainted expirations of those afflicted with detestable disorders, if not permitted to escape by free ventilation, must be taken into the lungs and then into the blood; and it is sanitary ignorance of the most inexcusable sort which refuses to recognize the fact, estimate the danger, and provide the remedy. . . .

The new house may be innocuous because new; but what of the old house, with its hidden cesspool in the cellar, or so near the building that the prevailing winds blow directly from it into the chamber windows; with its earthen drains under the cellar floor, that have no fall, or run up hill, broken, or with leaking joints saturating the spongy earth with sewage; with its old honeycombed iron and tin pipes, that only needed to be smartly tapped to fall to pieces; with its untrapped and unventilated pipes, that admit the air of the sewer or cesspool through closet, bath-room, or kitchen sink directly into the house; with its space under the building where light never penetrates, and its dark, unclean cellars, where stagnant air, tainted with mildew, is heavy as the tombs, where vegetables lay rotting, and cobwebs are spun, and vermin breed and multiply, and rats burrow and undermine; with its dark rooms made more dark with heavy curtains, its cupboards and store-rooms where stale food

decomposes, its clothes-presses and closets where soiled garments hang and cast-off shoes mold; with its cisterns and foul wells that are never cleaned; with any or all of the thirty or more defects in plumbing and draining, which Mr. Frederick Owen, the sanitary engineer, enumerates as having been encountered in his own experience,—defective water-closet apparatus, cisterns with overflows joined to soil-pipe or drain, safes under closets or basins connected with soil-pipes or drains, two or more fixtures with unventilated traps on the same line of pipe siphoning each other when used, scullery sinks connected to drains admitting foul air to houses not only through traps but through brick-work joints, rain-leaders used as ventilators to drains delivering foul air into bed-room windows or under eaves of roofs, etc., etc.

Can any house claim to be safe as to health in which any one of these defects exists? How many of you can honestly declare, of your own knowledge, that not one of them is to be found under your own roof? Do you know that five, ten, twenty, all of them are not there? How many of you have sought to ascertain the facts concerning them? Will you plead your ignorance in excuse, if your wife, or child, or others dear to you, die from typhoid, from diphtheria, from scarlet-fever, from any other zymotic disease? Whose but yours the fault that there is no well trained corps of sanitary inspectors to do these things for you? Till such a corps is created, the responsibility rests upon each householder. You can make no better preparation against an epidemic visitation than to examine the possible sources of air-pollution in your own dwellings. See that the pipes within are sound, well trapped and ventilated, and then follow them away from your house to the sewer, and thence to its outlet, and then observe what becomes of its contents, lest these are brought back to you in your drinking-water. If you do not take these precautions, you should feel that you are sleeping over a volcano. A thousand venturesome ones may even peer over the crater's brink and sniff the sulphurous fumes unharmed, but some day the thin crust breaks and you are overwhelmed by the steaming lava. . . .

If medical men have not been regarded as health-protectors as well as health-restorers, it is because they have too tacitly acquiesced in the general belief that the latter is their only function, and they have consequently deserved the imputation of rejoicing in the outbreak of an epidemic, or the occurrence of a sickly season, for the greater harvest of fees it would bring. Undoubtedly the practitioner of medicine must gain a livelihood, and if his income is to be determined by the number and severity of his cases, it would be unfair to censure him for welcoming the summons to the bedside of a victim of typhoid, or the stealthy visit of one cursed by some constitutional taint; but what physician who

regards medicine as something more than a trade does not feel sad at heart to know how easy it were to have averted the fever or the poisoned blood! Is it not a cruel necessity that compels him to take the fee from the half-starved sufferer, who ought to keep it to buy bread for herself and the famished children whose very eyes cry hunger? Is it right that in this Christian land the young graduate must himself look for means of living to those who come to him because he is cheaper than the doctor whose sign is weather-beaten or has given place to the more aristocratic door-plate? Is it right that the poor can only look for succor to that skill which they can buy?

What is right?

The public health should be the paramount question of social polity. Individuals should be educated from childhood to the knowledge of the importance and dignity of their bodies, and the necessity of keeping them sound, as well for their own greater personal benefit and pleasure as that the descendants they leave may be worthy of them. The men who have made the intimate structure of these bodies and the laws of life their life-long study and vocation should be the ministers of health, looked to for advice, and properly rewarded for their services. The stipend of the family physician should not depend upon the accidents of disease, but he should be the paid sanitary adviser and counsellor of the household, earning his salary when they are well as when they are ill. A corps of well remunerated sanitary officials should guard the avenues by which disease can enter, and hospitals, asylums, infirmaries, dispensaries, and cliniques should be multiplied for the poor, and supported by the churches in common as the mission work that will bring most gladness to the earth; for disease is the parent of crime, as it is itself the child of the unclean.

Is all that Utopian?

This, at least, is hideous truth. The child who loses its life from a preventable disease is murdered by its indifferent parents. The unhealthy school-house is a living charnel, and they are ghouls who make it so. The advent of an epidemic is a crime, chargeable upon the citizen who has neglected to urge with all his might the sanitary precautions that would have kept it away. Ignorance of the law does not protect its criminal violator. Why should ignorance of sanitary laws be any less reprehensible?

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People who think that Pasteur's claims to fame are founded solely upon his theory of inoculation for the prevention of hydrophobia, should be reminded that he saved the wine crops of France by destroying an organic germ that spoiled the wine, and that he saved the industry of silk culture of that country from ruin. The good done in these two cases is simply incalculable.

## BUTTER AND DISEASE GERMS.

That disease germs have often been distributed by infected milk is too well known to admit of a doubt, but that the germs of disease could be packed away in butter and carry infection to the consumer is not so clearly proven. The question has, however, received some attention from physicians, and upon this subject a writer in the *Medical Record* says,—

"I have been reading the discussion on scarlet-fever in the medical journals, and the series of letters in *Science*, and in support of the theory *de nihilo nihil fit*, I will offer a factor I have never seen alluded to in the literature on this subject.

"In an active and extended experience of twelve years in country practice, where much of the produce that is consumed in cities originates, I have observed that it is the custom among the farmers, especially the younger families or beginners, to make butter in the house, in larger or smaller quantities; and in winter time, to prevent the milk from freezing, it is usually kept in the kitchen, which is also the living-room, and often the only place in the house where a constant fire is kept. In this room the convalescents stay, and to it are often carried the sick, whatever may be the nature of their illness, whether diphtheria, scarlet-fever, or what not, because it is probably the only room where an attempt at equable temperature would be successful. Here the milk, from which butter is made, is kept in large, shallow pans, sometimes on open, temporary shelving, but more frequently in 'safes'—a light wood cupboard with wire gauze or perforated tin panels at the ends, and folding-doors of the same material. Now there is nothing in this to prevent the exhalations, desquamations, or disease germs from being absorbed—and nothing possesses absorbent properties more than fresh milk—or impinging on the surface of the milk from which it, with the cream, is carefully skimmed, until sufficient is gathered for churning, when it is made into butter, packed, and carried to its home market, from thence to anywhere and everywhere, without ever having been subjected to any influences, either thermal or chemical, to destroy or impair organic life.

"I have also seen the mother, who was the house-keeper and only nurse, leave a large wooden bowl full of butter, in which her hands and arms had been immersed nearly to the elbows, and follow me through two adjoining rooms in which her children were sick with scarlet-fever, give me the history of their illness the night previous, receive directions and instructions, and return to her butter-packing without stopping to wash her hands. And this butter was sought by local dealers, shipped to city markets, where well watched and carefully isolated innocents developed those mysterious *de novo* cases of scarlet-fever."

# DOMESTIC VARIETIES.

### Necessity of Thorough Ventilation.

If a single ounce of cotton be burned in a room, it will so completely saturate the chamber with smoke that one can hardly breathe, although there is but a single ounce of foreign matter in the air. Should an ounce of cotton be burned every half hour during the night, the air would be kept continually saturated with smoke, unless there should be an open door or window for it to escape. But the sixteen ounces of smoke thus formed by the cotton burning are far less poisonous than the sixteen ounces of exhalations from the lungs and bodies of two persons who have each lost a pound in weight during the eight hours of sleeping; for while the dry smoke is mainly taken into the lungs, the damp odors from the body are again absorbed into the lungs as well as into the pores of the skin. A little more thoughtfulness would impress upon every one the importance and necessity of having sleeping-rooms well ventilated. Air should be admitted not only during the day, but whilst we are asleep. Another very important item of the health of our beds is, that every morning, after getting up, the sheets, blankets, and other coverings should not be rearranged without being left about for a few hours. It would be a great advantage if they could be aired for that space of time. This may seem a trifle, but trifles make up the sum of our health, comfort, and existence.—*Herald of Health.*

### People Fret Too Much about Trifles.

Women find a sea of trouble in their housekeeping. Some one says they often put as much worry and anxiety into a loaf of bread, a pie, a cake, into the weekly washing and ironing, as should suffice for much weightier matters. Suppose these things go wrong to-day: the to-morrows are coming in which to try again, and the thing is not worth clouding your own spirit and those around you, injuring yourself and them physically—for the mind affects the body—and for such a trifle. When a thing is beyond repair, waste no useless regrets over it and do no idle fretting. Strive for that serenity of spirit that will enable you to make the best of all things. That means contentment in its best sense.—*Scientific American.*

He had an auburn-haired girl, and promised to take her out riding. She met him at the door, and he exclaimed "Hello! Ready?" She misunderstood him, and they don't speak now.—*Jove.*

### Oat Meal Properly Cooked.

Oat meal will turn out like properly boiled rice, each grain swollen four times its natural size, and no two sticking together, if cooked by the following rule: Put four table-spoonfuls of finest quality Irish oatmeal, with one quart of cold water, into a double boiler; add a teaspoonful of salt, and stir for a moment to mix. Stand it over a brisk fire and boil the water bath without stirring the meal for two hours, or until the mass has a thick, jelly-like appearance; push it to the back part of the range, where it will steam over night. In the morning bring the water in the under boiler to a boil; then turn the oatmeal carefully into a large, deep dish. Do not stir or scrape.—*Table Talk.*

The naked hills lie wanton to the breeze;
The fields are nude, the groves unfrocked;
Bare are the shivering limbs of shameless trees—
What wonder that the corn is shocked?
—*Wades and Fibre.*

A very foolish man is he who robs himself of the comforts of life that he may accumulate a great fortune for his heirs. More foolish is the farmer's family who live uncomfortably in the kitchen—usually the dingiest and most uninviting room in the house—keeping the best rooms darkened, waiting for company. Better, a hundred times better, live in those cozy, comfortable rooms all the time. They will seem all the more cozy when the company comes.—*Rural Home.*

OUR NATIONAL "HEN."—Mrs. Lillie Devereux Blake takes down the masculine pretension in politics, with the following comment on Senator Ingalls's illustration of force as the essence of political power:

"'Why, look at our national bird,' says he, 'the great American eagle, which screams forth our independence to the world: force is written in his great talons and his powerful beak.' Now, Mr. Ingalls should know that the eagle which he refers to in the third person, male, singular, is not that kind of a bird. Any ornithologist will tell him that the American eagle is a hen, for the male eagle is too small and puny to be emblematic of anything except insignificance."—*The Sanitary Era.*

American housekeepers do not appreciate the hygienic value of soup. A properly prepared soup is digested without difficulty, and assimilated almost as soon as eaten.—*Idem.*

Spread oyster crackers in a large pan, sprinkle salt over them, and place in the oven to heat while the stew is making, and they will be greatly improved.

### A Possible Result of Sanitary Legislation.

The reaction against the theory that "The best government is that which governs least" is making itself felt, particularly in the direction of sanitary legislation. A great mass of this is laid before the state legislatures every winter, and every year governmental regulation takes a wider scope. A medical journal facetiously suggests that if the present movement continues, scenes like the following may not be unusual in the police courts twenty-five years hence:

Judge—"What is the matter with the prisoner?"

Officer—"Found him sitting on a stoop holding on to his head."

"Where were you last night, prisoner?"

"I was at home, sir. I don't drink. I had been walking in the sun and felt dizzy."

"Where was your umbrella?"

"I haven't got one, sir."

"Don't you know that it's against the law to walk in the sun without an umbrella? You may go this time, but I caution you to buy an umbrella or keep on the shady side in future."

"Next!"

"Found this man clinging to a lamp post and groaning."

"What's the matter, prisoner?"

"I had just been to dinner at Robinson's restaurant, and felt sick."

"What did you have for dinner?"

"Beefsteak and mince pie."

"Officer, did you make a microscopic examination of the mince pie at Robinson's?"

"I did, sir; there was no fungoid growth visible under a power of 240 diameters, the fat used stood Margarine's test, and the record showed that the pies had not been made for more than four days. The prisoner ate a whole pie of legal dimensions."

"A whole pie! Don't you know, prisoner, that it's against the law to eat over two cuts of mince pie at one sitting? I fine you ten dollars, and will give you sixty days if I see you here again; there is getting to be too much sickness in this district. Clerk, if that cholera case is able to stand up, send him in here for trial."—*American Analyst.*

"How old are you, Sambo?" "Well, sah, I's goin' on er hundred yeahs." "Indeed! Is it possible?" "Yes, sah, but I's got quite er little ways furder to go yit."—*Burlington Free Press.*

An allowance to girls and boys is an education for them, and a help in learning how to use money properly and how to take care of it under parental guidance.—*Ex.*

### One Way to Cleanse a Carpet.

Having dusted and removed such articles as can be carried from the room, wring a flannel mop out of hot water and wipe the carpet thoroughly, wringing the mop from clean water as often as it may become soiled. Now sweep with a broom as you ordinarily would, and when you have finished you will have a bright, clean carpet, with little or no dust, and all at the expense of a very little hard labor. Those who have not tried this method are skeptical about its merits; but one trial will convince.

### Sweating of the Feet.

Dr. Legoux uses a mixture of glycerine two and one half drachms, solutions of perchloride of iron one ounce, and essence of bergamot twenty drops, in the treatment of bromidrosis of the feet. The feet are bathed frequently in cold water for two days, and on the third day are painted with this mixture. The painful sense of heat gives way to a feeling of refreshing coolness, the moisture becomes less apparent, and with it disappears also the disagreeable odor. The applications are to be continued night and morning. The author obtained, by this means, the cure of a case which had resisted all other treatment, in two weeks.

—*Gazette Med. Paris.*

It is a greater wrong to be extravagant with strength than to be extravagant with money. It is poor economy to save pennies at the expense of a great deal of strength and time. Spend all in moderation, but hold time and strength as of more value than money.

A gentleman who was paying his addresses to a lady, at length summoned up sufficient courage to ask if they were agreeable to her, and whether he might flatter himself with a chance of ultimate success. The lady replied "Stripes!" telling the gentleman to transpose the letters so as to form out of them another word, which word was her answer. The reader who can find out the word needs never fear being nonplussed by a lady; those who cannot must either persist till they overcome the difficulty, or may give up all thoughts of wooing.—*The Kitchen.*

Politician (breathless): "I say, doctor, I've been running all over town for you. For heaven's sake come to the house at once! The baby"——

Physician: "What's the matter with the baby?"

Politician (yelling): "He's all right!"

Twenty-four women graduated as lawyers in Michigan in 1888.

## CONTAGIOUS AND INFECTIOUS DISEASES IN NEW HAMPSHIRE.

For the month of January there was reported to the State Board of Health quite a prevalence of diphtheria and scarlet-fever, although neither of these diseases has assumed epidemic proportions. Diphtheria was reported from Dover, Nashua, Somersworth, Wolfeborough, Rochester, Bedford, Manchester, Langdon, Acworth, Epping, Concord.

Scarlet-fever was reported from Pittsfield, Dover, Nashua, Jaffrey, Henniker, Farmington, Somersworth, Rochester, Mont Vernon, Rye, Manchester, Claremont, Troy, Lebanon, East Kingston.

The largest number of cases of diphtheria reported from any one place was eight or ten in Bristol; and the greatest number of cases of scarlet-fever was nine, in Claremont, of a mild type.

The character of both these diseases was usually non-malignant. The action of local boards of health has undoubtedly restricted the spread of these diseases in several localities. In some towns the schools were closed; in others, isolation and disinfection were deemed sufficient.

No unusual prevalence of other diseases is reported.

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Never fear spoiling the little ones by making them too happy. Happiness is the atmosphere in which all good affections grow. From it comes the wholesome warmth necessary to make the heart-blood circulate healthily and freely. Give the children their own little place to play in. It will save you much trouble, and make them better and sweeter every way.—*Rural Home.*

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## THE STATE OF NEW HAMPSHIRE.

OFFICE OF THE STATE BOARD OF HEALTH.

*To Local Boards of Health:*

Please make your report on Infectious and Contagious Diseases the *first* or *second* day of every month, for the preceding month. We ask this in order that we may be able to make up our own report for the public as early as the *fifth* of each month. We desire a prompt report from every board of health in the state. Blanks furnished upon application.

Very respectfully,

IRVING A. WATSON, *Secretary.*

THE

# SANITARY VOLUNTEER

VOL. 1. MARCH, 1889. NO. 3.

## SANITARY AND OTHER NOTES.

No person will be asked to pay for the SANITARY VOLUNTEER who has not authorized his or her name to be put on the subscription list. We make this announcement for the benefit of those who may possibly receive a sample copy of several successive issues.

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Health Inspector Grogan, of Portsmouth, recently found that some thief had entered the small-pox hospital at Pest Island, and stolen the bedding and cooking utensils.

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Can the city government of Concord inform us how much longer the disgraceful lock-up is to remain one of "our public institutions"? This discreditable structure may be entitled to considerable reverence on account of its *age*, but it has no other quality that commands respect.

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The absence of a good sanitary administration in Italy permits the occurrence of nearly 300,000 cases of typhoid fever annually, with 27,000 fatal cases. In some districts more than three per cent. of the population die of this disease—a mortality more than one third greater than the total death rate of New Hampshire from all causes.

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Those who hold to the erroneous belief that ice is always pure, may be reminded of the fact that Dr. Schmelk, of Christiania, has found vast colonies of bacteria in the ice of the Jerstedalsbræ glacier. During periods of thaw they multiply with great rapidity.

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A medical correspondent of the Atlanta *Constitution* gives a recipe for the fire-extinguishing fluid offered for sale in glass bottles, and frequently

seen in the corridors of hotels and elsewhere, for ready use in case of fire. He says,—

"Take twenty pounds of common salt and ten pounds of sal ammoniac (muriate of ammonia, to be had of any druggist), and dissolve in seven gallons of water. When dissolved it can be bottled and kept in each room in the house, to be used in an emergency. In case of a fire occuring, one or two bottles should be immediately thrown with force into the burning place so as to break them, and the fire will certainly be extinguished."

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The State Board of Health has forwarded blanks to the teachers of Manchester for the purpose of obtaining some facts in relation to the sanitary condition of the school-houses in that city. These blanks ask for specific information regarding size of room, number of pupils, size and number of windows, methods of heating, ventilating, lighting, &c. A similar work has been done in other sections of the state, as will be seen by reference to the reports of the Board.

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A bill is before the Massachusetts legislature for the suppression of quackery in the practice of medicine. Probably no other state in the Union contains so many quack doctors of all kinds and shades, most of whom are in Boston. For the good of suffering humanity, it is to be hoped that the bill will become a law. Its defeat is, however, probable, by reason of the powerful lobby with which the quacks are opposing the measure. They also have upon their side one of the more prominent daily newspapers of Boston, the influence of which they have undoubtedly purchased.

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Referring to the editorial in the January number of the SANITARY VOLUNTEER entitled "The Clergy and Sanitation," a physician writes us that he has a clergyman for a neighbor who allows all the slops from the chambers to be thrown out upon the snow directly in front of the physician's house, notwithstanding remonstrances have been made against the filthy practice, and suggests that such a man would be a feeble expounder of sanitation. Doubtless the physician is right, but this act represents only the indifference or shortcomings of one individual in the profession. Some of our best sanitary workers are in the ranks of the clergy, and they practise as well as preach good sanitary doctrines. The case complained of, however, is not in keeping with good health, good morals, or good feelings between neighbors.

We accept the "Iowa bumper" which Dr. J. T. Reeve, the efficient secretary of the Iowa State Board of Health extended to us through the *Monthly Bulletin* of that board. If the Doctor will come to New Hampshire next summer, we will reciprocate by introducing him to the "Lady of the Lake," the "Old Man of the Mountains," and enough other celebrities to ensure him a good time.

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It is almost impossible for the human mind to realize the minuteness of microscopic forms of life. Madame Weber von Bosse found that the greenish color of certain sloths was due to parasites growing upon the hair. It was calculated that from 150,000 to 200,000 individuals lived upon a single hair. This fact offers food for reflection to those who are daily drinking disease-producing germs in the water of polluted wells, and from other sources. These little destroyers of life are safely hidden beyond the recognition of the unaided senses of mankind.

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Dr. F. A. Castle, of New York, describes in *Medical Science* a simple and efficient contrivance for filtering water. He says,—"I took an ordinary pharmaceutical percolator [tunnel] and packed the outlet with absorbent cotton so tightly that the water could only flow in drops. By means of a piece of copper wire for a bale, it was suspended from a hook on the lower side of one of the pantry shelves, over the shelf of the sink. As often as is necessary, water is poured into the percolator, and the water-pitcher is placed beneath the outlet. Whenever the cotton shows much discoloration (a thing which is easily observed, owing to the percolator being of glass) the maid replaces it with fresh absorbent cotton. It is in all respects the most practical and cheapest I know of, and has no machinery to get out of order, no patent right to carry, and the advantage over most filters that the filtering medium is always under observation, so that there is little risk of contamination of the water by accumulations of filth.

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An intelligent farmer called upon us to enter his name upon the subscription list of the SANITARY VOLUNTEER, and, being of a social turn of mind, sat down for a little chat. One incident that he related was so forcibly put, and its like is so frequently seen, that we cannot forbear relating it: Said he,—"How little people in general know about the worth of pure air. Why, to illustrate, a neighbor of mine has a baby that has been ill for several weeks. It is kept in a small room heated by a stove, and the mother is so afraid it will take cold that she has battened up all

the crevices around the windows, and has hung a quilt at the door so that not a breath of air can enter. The little one is kept in this prison of hot, foul air, and is being slowly poisoned to death. The girl told me, as I came by to-day, that they were afraid the baby had taken a little more cold, as it was not quite so well. Of course it 's only a question of days that the baby can hold out against this kind of treatment. Its life is being slowly taken by the loving-kindness of parents ignorant of Nature's requirements."

We have seen this condition of affairs so often that we know it is no over-drawn account. Scores of children are every year sacrificed by being deprived of a sufficient quantity of pure air to keep the blood in a healthful condition, and the general functions of the system in vigorous activity.

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The Lomb Prize Essay on "Practical Sanitary and Economic Cooking for persons of Moderate and Small Means," awarded the $500 prize at the last meeting of the American Public Health Association, was recently so mutilated by the New York *Herald*, after an understanding that it was to appear in full in that paper, that the Association has issued a public circular regarding the matter, which puts the *Herald* in a rather bad light. The *Herald* was to have the opportunity of first presenting this valuable essay to the public, upon the understanding that it was to be published in full, instead of which was printed a terribly garbled and distorted article.

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## FILTH AND DIPHTHERIA.

*Nine cases of Diphtheria.* Location, a farm-house in a healthy and salubrious district in Coös county. Family consisted of H., a respectable and well to do farmer, his wife, five children ranging from two to fourteen years of age, and his father and mother. Dec. 1st found wife, and boy four years old, sick with diphtheria, very severe; had been ill two days, but did not suspect nature of disease. Mr. K. and wife, young people living half a mile distant, had been assisting since invasion of the disease, and, upon learning that it was diphtheria, they left through fear of contracting it, taking with them one of H.'s children, a little girl about eight years of age. The remaining three children were kept in the other part of the house with their grandparents.

During the next four or five days all the children, including the one at K.'s which was at once brought home, were attacked with the disease; still later, H. himself. Mr. K. and wife, who remained away after they became aware that the disease was diphtheria, were also attacked in a mild form. The character of all the cases in H.'s family, with the excep-

tion of his own, was malignant; three of the children died in the course of a very few days; the wife and the other two children lived, though barely, and were paralyzed for weeks. The grandparents did not contract the disease.

*Sanitary Conditions.* The buildings were located upon a dry soil, free from malaria or any other naturally unhealthful conditions. A stream, amounting almost to a river, of swift running, pure water from the mountains coursed within a hundred feet of the house. The opportunity for drainage, by running a sewer into this stream, was excellent, and would have cost but a trifle. There was an abundant supply of running water, from a spring of undoubted purity, for household purposes. What then could be lacking to make the sanitary conditions perfect? Let us investigate. A large room served the double purpose of kitchen and sitting-room; adjoining this was a large back room, which was used for a wash-room and many other purposes; back of this was the piggery containing two or three hogs; and still farther back were the barn and barnyard.

In the kitchen (and sitting-room) was a sink, the only one in use in the house; the drain-pipe from it went straight down through the floor, without a trap, *and there ended.* An excavation in the earth beneath, and which would hold from ten to twenty barrelfuls, was the receptable into which everything from the sink ran. This filth pit was cleaned out, we were informed, *about once in two years.* The pit was dug so that it was in part outside of the house, for convenience when cleaning, and *this part was closely covered with boards!*

Let us step into the back room: There is a square hole about two feet across, cut through the floor, which presents a most filthy appearance. Upon inquiry we are informed that the slop-pails are emptied there, and refuse matter not fit for the pigs and too bulky to go down the sink-pipe is dumped there, and that on washing-days the wash water is poured down the same place. No receptacle of any kind is placed beneath this opening, and all that is thrown in goes as it may beneath the buildings! Still back, the beautiful (?) hogs, which make the "sweet pork of a Northern farmer's own raising for his own family," wallow deep in a sloppy, plastic material, which oozes through the cracks between the boards into this handy back room. It is probable that the delicious milk that is cared for and the butter made in these rooms are most sumptuously relished by the family, and by their customers also, for this family sells considerable butter. The barnyard, which is adjacent to the hog-house, is in harmonious keeping with the rest, filth holding supremest sway in each and every part of the premises.

*Origin of the disease.* That the malignity of these cases arose from the filthy conditions and surroundings there can be no doubt, although it

is possible that the disease may have been carried to the family, and not produced *de novo* by the circumstances above described. Investigation developed the fact that a week or more before the outbreak, a man stopped at H.'s for dinner who lived twenty miles away, and who some four weeks prior had been ill with diphtheria, so it may be possible that he communicated the disease to this family, all conditions being favorable. This traveller also called at many other places, and finally went to work in a camp with fifteen or twenty other men, but no other cases occurred. This fact is mentioned to complete the history of the outbreak.

In these cases medical treatment was of little or no avail. The sanitary conditions were so bad that treatment seemed useless. Filth destroyed the lives of three beautiful children.

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## DANGEROUS RAILROAD ANGLES.

The fatal accidents which not infrequently occur on our railroads to employés by reason of catching the foot in the guard rail, frog, or at the junction of two rails placed at an acute angle, is well known to the public. The following taken from a newspaper immediately following the accident illustrates what might happen at almost any railroad station in the state:

Harry L. Manning, a car-coupler in the employ of the Concord Railroad, was instantly killed, last Saturday forenoon, while pulling out a pin to disconnect freight cars on the Worcester & Nashua Railroad track, a few rods west of the intersection of that road with the Nashua & Lowell Railroad in Nashua. The cars were in motion and were backing towards the Concord Railroad station, and while he was engaged in pulling the pin his foot caught in the sharp triangle where the rails come together just before reaching the frog. He was thrown down face forward apparently, and the cars passed over his left leg crushing it, and passing over his body. His head was completely severed and thrown under his body, and he was left almost a shapeless mass. He leaves a wife and two children, and was 32 years of age.

The total number of these dangerous traps in the state aggregates several thousand, and are an ever open danger to trainmen. Figure 1 shows eight traps (A) where the foot might be caught, at a single switch.

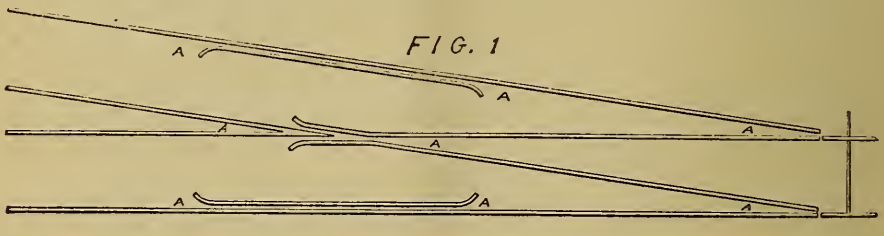

FIG. 1

The dangers shown in Figure 1 actually exist at many of our railroad

switches, although it is true two of the eight traps have been done away with in some localities by an improved frog.

This subject was considered by the state board of health of Michigan a few years ago, and the methods shown in Figure 2 were recommended as a remedy:

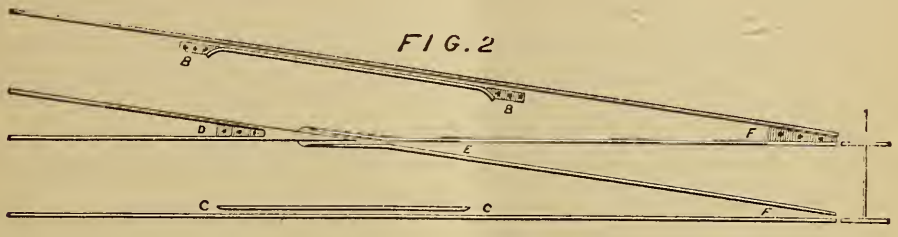

FIG. 2

The guard rail may be rendered safe by spiking down a block of wood as shown at B. This may be small, and would be sufficiently yielding, in case the flange of the wheel should strike it, to do no harm.

Another plan was to make the end of the guard rail flaring as shown at C, or a steel spring might be used, such as has been adopted by some of the railroads in Massachusetts.

In some instances an improved frog, similar to the one shown in Figure 3, is in use. This is so shallow and narrow that there is no danger of catching the foot in it.

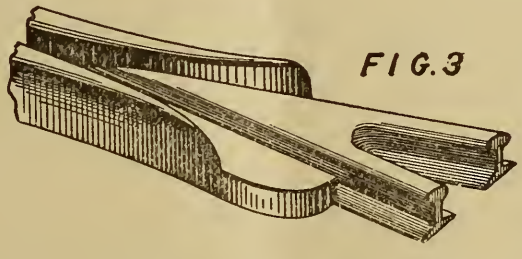
FIG. 3

At the other angles triangular pieces of wood might be spiked down, as shown in Figure 4, and at D and F in Figure 2.

FIG. 4

Of course at the angles E and F, Figure 2, only thin pieces could be used on account of the flange of the car wheel, and there may be other objections to the specific methods here suggested, but it is certain that these dangers can be removed, especially at the stations, where the accidents are most likely to occur. The main line between stations perhaps would not require its guard rails protected, but at and near stations the danger from these angles should be wholly removed

This subject has received legislative consideration in Massachusetts by the enactment, in 1886, of the following law:

"Every railroad corporation, operating a railroad or part of a railroad in this Commonweath, shall, before the first day of January in the year eighteen hundred and eighty seven, adjust, fill, or block the frogs, switches, and guard-rails on its tracks, with the exception of guard-rails on bridges, so as to prevent the feet of its employers from being caught therein. The work shall be done to the satisfaction of the railroad commissioners, evidenced by the certificate of their clerk."

We believe that the state should compel all railroad corporations to use every means feasible to reduce the danger of railroading to a minimum, and if the law is of any value in Massachusetts it might be made to serve a like end in this state.

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## A MOVEMENT FOR PURE CONFECTIONERY.

In 1884 there was organized, at Chicago, the National Confectioners' Association of the United States. This organization is composed of manufacturers of confectionery desirous of keeping all injurious adulterations out of the market. A circular issued by the Association says,—

The principal object of this Association is to raise the standard of confectionery, and exclude, so far as possible, adulterated goods. This work has been very successful. Since the first meeting in 1884, through the efforts and backing of the Association, stringent laws have been passed in the states of New York, Massachusetts, Ohio, Tennessee, Michigan, and Pennsylvania.

The Association, at its third annual meeting, held at the Burnett House, Cincinnati, May 12th, 1886, indorsed the following resolution:

"This Association hereby offers a reward of one hundred dollars for evidence that will enable it to convict any person of adulterating confectionery with poisonous or injurious substances—the Association assuming the cost and responsibility of prosecuting the offender."

Notwithstanding this reward, and the vigilance of the committee, not a single case of injurious adulteration has been presented, which is strong proof of the almost complete extinction of mineral adulteration. Nevertheless, we desire the coöperation of the boards of health throughout the country, and earnestly request that any case of supposed adulteration that may come under their notice be reported to the secretary, Martin Dawson, Chicago, Ill.

The Association feels well pleased with the result of its labors during the past five years, and is confident that its future work will

redound to the benefit of the public and all legitimate manufacturers of confectionery.

We are also satisfied that no class of manufactured goods offered for public consumption is so entirely free from adulteration as confectionery.

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## A STATE DIRECTORY FOR NURSES.

Mr. A. M. Corning, at the request of physicians and others, will establish at his office, 936 Elm street, Room No. 9, Patten's Block, Manchester, N. H., a State Directory for Nurses, and requests all those who intend to make this a profession to register with him in one of three classes:

First, Educated Nurses.

Second, Professional Nurses, those whose knowledge has been gained by experience.

Third, Ordinary Nurses, giving recommendation as to character and ability, and to keep the Directory notified at all times when at liberty to make engagements, stating terms per week. Registration free.

Nurses will be procured, so far as possible, at short notice, for physicians and others needing their services.

Similar directories have been established in other states with excellent results. The method provides a way by which a nurse can be obtained immediately. The plan is one of great convenience to the physician and patient, besides providing employment for those who wish to act in this very important capacity. We advise all such to correspond with Mr. Corning for particulars.

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## TYPHOID FEVER FROM A POLLUTED WELL AT EXETER.

The board of health at Exeter recently reported to the state board of health five cases of typhoid fever in one family in that town, and asked for an examination of the water-supply that the family was using. A sample of the water was forwarded to the state board and analyzed by Prof. E. R. Angell, with the following result:

| | |
|---|---|
| Odor | foul. |
| Color | yellowish. |
| Evaporation | quiet. |
| Residue | yellowish and flaky. |
| Ignition of Residue | it blackens strongly. |
| Total solids, grains per gallon | 31.2 |
| Volatile and combustible matters | 4.9 |
| Hardness | degrees, 6.8 |
| Alkalinity | " 2.0 |
| Chlorine, grains per gallon | 2.8 |

| | |
|---|---|
| Ammonia, parts per million: | |
| free ammonia | 1.460 |
| albuminoid ammonia | 0.218 |
| Nitric acid | much. |
| Nitrous acid | some. |
| Sulphuric acid | much. |
| Carbonic acid | much. |
| Lead | trace. |
| Iron | some. |
| Sediment | large quantity. |

Microscopic Examination,—Many infusoria and bacteria. Much disintegrated and suspicious looking matter. This water is horribly polluted.

The Exeter board of health reported as follows upon the well and its surroundings:

There have been five cases of typhoid fever, one fatal, in the family using water from the well from which the sample was taken. The well is situated in a compact part of the town, is eleven feet deep with a very soft bottom, the stones used to finish the inside of the well resting on a plank curb, and it has the appearance of having never been cleaned out. About four feet of water in the well. It is surrounded on three sides by out-buildings: privy, 22 feet distant; a pit, 2 feet deep; pig-pen, 18 feet. The house is occupied by two families, and the sinks discharge into molasses hogsheads from which the bottoms have been removed; one is 20 feet, the other 28 feet, distant from the well.

The pig-pen is at present unoccupied, but until within about one year has always contained a large number of hogs. The owner of the premises, who lived there until his death from Bright's Disease about a year ago, was a hog butcher and had been for years, and kept from seventy-five to a hundred hogs every year within ten feet of the well, until butchering time in the fall. Here he did his butchering, the refuse of all kinds being left upon the ground to soak away. Soil, about eight inches sandy loam; sub-soil, yellow sand to water, then quick-sand. The land is very level for a half mile in all directions. The buildings are old.

The family living in the other part of the house report that the water had a tendency to make them all sick. Last July, or about a month before the family in which the typhoid fever occurred moved in, the water caused three or four of them to have very sore mouths, and they discontinued its use, except for washing, and have not used it since.

With such filthy surroundings as described, nothing but dangerously polluted water could possibly come from this well. There are hundreds of other wells in this state just as unfavorably situated and just as dangerous to health as the one under consideration. There are doubtless more of the same class in Exeter. They are to be found in every town, and are a constant source of danger to any family using the water they contain for drinking purposes.

This Exeter well has been permanently closed by order of the state board of health.

## SELF-HELP.

### An Address to the Working Classes.*

BY A. WYNTER BLYTH, M.R.C.S., L.S.A.

In the south of France there were two neighboring vineyards;—in the one, the property of Alphonse, the vines were sickly and diseased; in the other, the property of Peter, the rich grapes hung in heavy clusters amid green untainted leaves.

Said Alphonse to Peter, "How is it the blight has not touched your vines?"

Peter replied, "I have sulphured them."

"Sulphured them!" rejoined Alphonse; "so have I mine."

"Did you do it yourself?"

"Myself! No; have I not laborers?"

"Ah!" cried Peter, triumphantly, "there is the reason. I put my own hands to the work; then I was sure it was done, and done well."

Self-help, my fellow-workers, is the title of my address: self-help in the preservation of your own health and in that of your families.

Much has been done for every one in this country: laws of a beneficent character have been passed, enforcing the removal of the more evident injurious conditions; in most places there are hospitals for the infectious sick; there are elaborate systems of drainage and water-supply. But from all these the people themselves will never reap the full benefit unless each individual, in his sphere, be it small or great, adopts as the rule of conduct the principle of self-help. This principle of self-help may be developed especially in three directions:

Self-help in the home.

Self-help in daily work.

Combined or organized self-help.

*Self-help in the home.* Self-help begins in the selection of a home. A man has generally some kind of choice. If a dwelling, on account of some serious defect of structure or position, lets at a cheap money rent, it is a dear bargain and you are best quit of it. In the selection of the place where you are to live, always make good use of three inspectors of nuisances,—your two eyes and nose; look out for signs of rats,—rats as a rule mean bad drains; examine the basement and see the course of the soil-pipes, sink-pipes, and waste-water pipes, and whether the two latter discharge, as they ought, in the open over a trap gully; look yourselves to all the traps, light a bit of paper and see if there is an up-draught; more especially dread dampness, as evidenced by stains on the walls; be very sus-

*Read before the Sanitary Institute of Great Britain.

picious of match-boarding in a basement,—match-boarding in nine cases out of ten is to conceal, not to remedy, dampness. Of all the definite nuisances to health, dampness is the one concerning which the proof of its insanitary character is the most abundant. Any obvious nuisance must be at once removed: do not wait on the leisure of others: do it yourself, if you can.

Two families, Dawdle and Spry, living in the same quarter, had their drains stopped up and their basements flooded by the violent thunderstorm which burst over the metropolis a few weeks back. Dawdle put his hands in his pockets, and said, "It 's the landlord's duty to unstop the drain; he is coming to-day for the rent—a good thing, too, for the stink is enough to make us all ill."

But the landlord did not come that day, nor the next; and by the time the drain was unstopped Dawdle's family, including himself, were all seriously sick with bad sore throats.

Very different was the action of Spry. He came home from his work, saw the state of things, pulled off his coat, opened the drain, cleared the drain, washed the filth out of the basement, disinfected it with a few pennyworths of carbolic acid, and after a couple of hours' work his house was as sweet and clean as before the accident. Self-help again!

"It ain't my work to clean up this yard," says Sally.

"Nor mine, neither," retorts Betty. So between the two the yard is left, and the filth accumulates, to the discredit and injury of both. If the house were on fire, think you would these two wrangle as to who should fetch the water or fetch the fire-engine? Ah! preventable disease, disease preventable by our own efforts, is more destructive than fires or railway accidents, even though they be as terrible as the Exeter fire or the Doncaster collision.

Division of responsibility in sanitary matters is always wrong. It is essential in tenement houses that the tenants themselves come to a just agreement as to who should keep the yards, stairs, and passages—common to all, soiled by all—in a cleanly state. I know hundreds of workingmen's dwellings where this arrangement is adopted, and the results are most creditable; and there are others where, from a want of mutual understanding, dirt is not the exception, but the rule.

In the home it is specially to women we look to show us what self-help can do. It is woman that makes our dull homes bright, with her kindly presence and attention to little details, trifling in themselves, but of immense importance in the aggregate. It is her instinct of self-help that adorns the windows with flowers, cleanses floors and walls, and has a place for everything and puts everything in its place.

On the woman lies the responsibility of rearing, feeding, and instruct-

ing the young. Not the least of her duties is that of preparing and cooking the food for the family. Now, in the matter of food, self-help allied to knowledge will prevent our being infected by our food, otherwise what should be nourishment becomes destruction. The most essential matter is to cook nearly everything eaten or drank, and to cook it well. It is the great discovery of modern times to have found that the infectious fevers are produced by small living particles called germs; they are very minute, and quite invisible to the unaided sight—so small that they can hold a family party on the point of a needle. They belong to a large race, most of whom are perfectly harmless: those that cause disease are the wicked members of the community. Their tenacity of life is sometimes very considerable: some will stand the heat of boiling water for a brief time, but none will stand it long. Many foods and drinks may become infected with disease germs, but milk is specially liable to this infection; sometimes it becomes injurious from being derived from a diseased cow, sometimes from being contaminated by a diseased person. It has been fairly proved that consumption, scarlet-fever, diphtheria, typhoid fever, ulcers in the mouth, and a few other maladies have arisen from taking infected milk. In all these cases the milk has been taken unboiled. There is no authentic case of injury from boiled milk. Of course, milk infection is only occasional: large populations may take unboiled milk for a considerable period without injury, but the time will come when it shows itself as a dangerous fluid. The old lady looked under the bed for the burglar for twenty years, and found him at last. No chemical test will distinguish healthy from diseased milk; therefore it is a golden rule to drink no unboiled milk. For similar reasons the thorough cooking, or, in biological language, the sterilization, of meat and vegetables is most essential.

*Self-help in daily work.*—There is no trade, handiwork, or occupation whatever, by which a man earns his bread, but what has some special dangers to his health. Open-air workers are liable to be struck by the hot summer sun, or to be chilled by the winter's damp and cold. In-door workers have specially to battle with all kinds of bad air, causing many maladies, chief of which in fatality and incidence is consumption. Consumption is a preventable disease; recent researches have shown it to be intimately connected with a little germ, a parasite, and it is believed that this germ adheres to minute particles of dust, and in this way gets entrance to the lungs with the dust. Consumption is one of those complaints the contagion of which the people have been carefully and erroneously taught not to believe in; there is no pretence at precaution. Healthy husbands sleep with consumptive wives; children play about in the sick-room; what is coughed up from the chest is allowed to be spat anywhere, as, for

example, on the floor of a workroom, where it may dry and get converted into dust and be breathed as dust. Experiments have been made with such dust, and it has been found to readily infect animals, giving them a disease of the lungs; so there is little doubt that those who have consumptive relatives or friends should adopt themselves, and cause to be adopted, simple precautions,—such for instance, as at night the separation of the sick from the healthy, and the reception of what is spat up from the chest on to rags or paper, so that it can be burnt or otherwise destroyed. To return to dust,—it has been found that mineral or metallic dust is more injurious than vegetable dust; but all kinds breathed day by day are a fertile cause of various and fatal chest complaints. Now, if any of you work in crowded, dusty rooms, you can if you choose to follow a bit of advice, always breathe dust-free air; the advice is, breathe through your nose only, keep your mouth shut. You will find in this Exhibition a collection of very ingenious respirators, little pieces of apparatus, which, by filtering the air through the cotton wool, will deprive it of dust and smoke. But the cavity of the nose is the finest respirator ever invented; it is carpeted throughout with a living velvet pile, always moist, so as to catch and fix the little particles of dust: the mouth for speaking and eating, the nose for breathing. Breathing through the mouth is a bad habit; those of you who have got it, get out of it as soon as you can. As for other measures a workman should take to preserve his health, in their detail they are as various as the trades themselves, and must not to-night detain us. I therefore pass on to consider what can be done by

*Combined self-help for health.*—The working-men of this country have combined, have coöperated for many purposes. You have coöperated to found great, successful clubs like the Oddfellows' and Foresters' Societies, dealing with and managing very ably large sums of money; you have combined for political and social purposes; you have combined in strikes for higher rates of wages or to redress some grievance;—why not combine for the purposes of health? And what better object, more conducive to health, is there than building yourselves healthy homes? Abolish landlordism, not by boycotting or shooting your landlords, not by refusal to pay rent or any other illegal way, but by becoming landlords yourselves, the owners of your own houses. It may be for the moment bad times, but these will pass. There are years when plums are scarce, and years when plums are plentiful: the good wife makes her jam in the plentiful years. The artisan can also make his jam in the plentiful years; the savings of ten men for five years might be enough to start building a row of small houses, or a block of houses, whichever you choose; perhaps much would have to be borrowed—what matters? Is it not better to pay interest and capital under the guise of rent, knowing

that in a certain number of years the place will be your own, than pay rent which in the long run would buy the whole house twice over? Should you build your own houses, you will build them strong, healthy, and convenient—none of the jerry building or house-grabbing structures. I hope there will come a time when the governing bodies of your cities will be told, We want no model dwellings built either by you or by speculators: we belong to the self-help gang, and will take all such matters into our own hands, and build them ourselves.

One last word: The leading rule in the social economy is, that each man shall support himself. To do that he must have health and maintain health, and no trouble, no temperance, no exercise should be spared to that end. Preventive medicine is democratic; it is not alone for princes or for the wealthy, it is for the people; and the more the people know of the causes of illness, the more will the efforts of those who have made hygiene their special study be appreciated and assisted. Without the confidence, without the assistance, of the people, we sanitarians can do but little: the full benefits of sanitary science will only be received when you help yourselves, and take advantage of the work that has been done, the knowledge that has been acquired.

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## MILK AND DISEASE.

Diseases transmitted by means of milk are always of the class due to special organisms, and now commonly called "germ diseases." That this class of affections should be frequently carried from one person to another through this common food might be inferred from its chemical composition, taken in connection with the fact that this "perfect food" is commonly used in the uncooked state. Most micro-organisms require for their growth food first "organized" by some other plant or animal. Milk presents these conditions better, perhaps, than any food commonly used by man. Admitting that the disease germs will find a favorable soil for their growth in milk, the questions arise,—Are disease-producing germs ever found in milk? What is their source?

1. Organisms may appear in milk as the result of infectious disease of the cow, the germs being excreted along with the milk. This has been proved in the case of anthrax and other diseases.

2. The udder may be locally affected with tubercle, in which case the milk is found swarming with the causative agent of tuberculosis.

3. Infective material may be carried from the hands of the milker to the milk. Scarlet-fever has been transmitted many times in this way. It is well known that certain local diseases of the udder may be carried from one cow to another by the hands of the milker—even tubercle, it is said. How much more certainly, then, would the milk be infected.

4. The evils of "watered milk," unfortunately, are not alone in its decreased nutritive value. Disease germs may be sometimes, not to say frequently, thus introduced. Simply washing the milk-pail in putrid water may be sufficient to cause severe disease, as has often happened in typhoid fever.

5. A frequent means of spreading such diseases as scarlet-fever is by the contamination of imperfectly cleansed vessels, in houses where the disease is present. Perhaps the milkman leaves a can to be exchanged the next day. It is left in the sick-room through the night, and of course collects some dust; and any one who has examined the dust of an ill ventilated room knows that it is full of germs. In this way the disease is carried to the next neighbor along with five cents' worth of milk; but there is no extra charge for the fever.

Milk is the only common animal food which is generally eaten without cooking. Under special circumstances, as in a fever scare, it may be that the milk is boiled for a few minutes. But heat is often not long enough applied to kill even the ordinary germs of putrefaction. In the centre of the vessel the milk is very likely several degrees below the boiling point. Persons who are in the habit of heating cream before churning know very well that without constant stirring the top and sides are much quicker raised to the required temperature than the centre.

No class of people, under present conditions, can do so much to prevent diseases caused by consumption of milk as the farmers. Each case already considered implies the method of prevention. If an animal is suffering from any disease accompanied with fever, do not use or *sell* her milk.

If there is local disease of the udder, never mix the milk with that of other cows. Of course, also, this should not be sold. If the disease is not very bad the milk may be used, provided it is boiled when first drawn, and a second time before it is eaten. Do not allow the same person to milk another cow, after milking the one with local disease of the udder, until his hands are throughly washed.

Never allow a person who has had the scarlet-fever to milk a cow for at least six weeks after recovery. Never allow the hired man to water the milk, even if the cow has spilled part, and there is not enough to "go around." If, for any possible reason (as preparing milk for the baby), it is necessary to reduce milk, use only pure water, and, better, boiled water. Milkmen should never leave cans at the houses of their customers. All utensils which have held, or are to contain, milk should be thoroughly scalded. By a universal application of these rules it seems certain that much disease might be prevented. They are not unreasonable or hard to apply. Try them.—*Dr. R. F. Burleigh (formerly of the N. H. College of Agriculture and Mechanic Arts) in "The Industrial," Manhattan, Kan.*

## HOW TO TREAT THOSE WHO ARE OVERCOME WITH GAS.

Several suggestions were made by different speakers at the recent meeting of the American Gas Light Association at Toronto. The most practical were those quoted on the authority of a prominent physician, *Scientific American*, December 8, 1888:

1. Take the man at once into fresh air. *Do n't* crowd around him.
2. Keep him on his back. *Do n't* raise his head, nor turn him on his side.
3. Loosen his clothing at his neck and waist.
4. Give a little brandy and water—not more than four tablespoonfuls of brandy in all. Give the ammonia mixture (one part aromatic ammonia to sixteen parts water) in small quantities, at short intervals—a teaspoonful every two or three minutes.
5. Slap the face and chest with the wet end of a towel.
6. Apply warmth and friction if the body or limbs are cold.
7. If the breathing is feeble or irregular, artificial respiration should be used, and kept up until there is no doubt that it can no longer be of use.
8. Administer oxygen.—*College and Clinical Record.*

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## HOW TO BATHE.

It rather detracts from our Yankee reputation for ingenuity to see what a fuss some of our people make when they proceed to take a bath. If you want to bathe quickly and economically, do it as follows: Buy a piece of crash towelling, and make a pair of bathing mittens by laying your hand upon the crash with the thumb extended, and cutting around it at a considerable distance so as to have a pretty wide margin for seams. Sew together two pieces thus cut out as a large and loose bathing mitten, making one for each hand. Take a quart or two of water in an ordinary bathing pan, or any ordinary flat-bottomed pan, and standing in it dip the bathing mittens into the water, and soaping them go rapidly over the body, following the application of the soap with the application of water. With the bathing mittens made in this way, one can take a bath in five minutes after he is ready, and it is not much work to get ready; much more quickly than when he tries to rub himself all over at once with a round ball of sponge. The bath may be taken in any room without wetting or soiling the carpet. With both hands to work with, and the whole flat palms, with thumbs extended, this little act of devotion to personal Hygiene is quickly and efficiently accomplished. The writer once invested in some attractive bathing mittens displayed in London shop windows, but they had no thumbs, and provokingly slipped round and round when in use. The home-made are better.—*The Sanitary Inspector.*

## DIRT AND DISEASE.

One of the inconveniences as well as dangers of winter is the lack, or seeming lack, of proper facilities for body-bathing and cleanliness. If possible, bathing is more imperiously demanded in winter than in summer. The relaxation of the tissues, and the perspiration produced by even slight exertion in the summer, obviate in a measure the necessity for frequent bathing, the removal of the perspiration being then a luxury as well as a necessity. In winter, however, perspiration is almost insensible, the cold contracts the skin and has a tendency to lock up the cutaneous excretions, and the want of facilities for bathing results in the retention within the body of effete substances that poison the blood and lower the vitality. There are few, however, so poor, and few houses so ill-constructed, that the whole surface of the body cannot at least once a week be entirely cleansed. But few have any idea of the fearful epidemics that have followed in the wake of uncleanly habits. There was a time in the early history of the Church, when dirt and doctrine were wedded to each other. There is a Church tradition, though it is hoped there is no truth in it, that St. James never took a bath. A biographer of St. Anthony says that "up to extreme age he never even washed his feet." No wonder, and no compliment, that erysipelas—a filth disease—is called St. Anthony's Fire. A recent writer says "the fourth century was the religious apotheosis of dirt, not because the hermits and Church had any quarrel with clean skins, but because of the *sensuous* delight (they must mortify the flesh) and comfort of bathing in hot climates. Bathing was one of the luxuries renounced at baptism, and fulminated against by various bishops and councils as late as the fifteenth century." Let us note the results. Millions of the human family were carried off by the plague, black death, and other awful epidemics. Between 1333 and 1348, 45,000,000 of people were said to have been destroyed by the black death alone. Sanitary science, then, as now, a branch of medicine, came to the relief of the people. Its precepts and teachings regarding the dangers of filth and the blessings of cleanliness, were the blessed evangels of a better health, and it is safe to predict that such epidemics can never occur again. The most dreaded of all our epidemics of to-day, and one insignificant as compared with those referred to, cholera, can be practically annihilated by proper *sanitary* measures—especially a modification of the filthy practices of the pilgrims at Mecca and on the Ganges. The practical lesson then is, not simply to wash and be clean, all of which is very sensible, but wash and be "well."
—*Monthly Bulletin Iowa State Board of Health.*

# DOMESTIC VARIETIES.

## Care of the Teeth.

Few people know how to use a toothbrush to the best advantage. After every meal, and as soon as possible, the brush should, of course, be applied vigorously to the entire surface of the teeth, on the inner as well as outer faces, passing the brush up and down and forcing the bristles as far as possible between the teeth.

If there is any accumulation of tartar or discoloration of the teeth, a powder consisting of two parts pulverized chalk and one part powered pumice stone, which any one can prepare, may be applied with a rubber polisher or felt brush which is at present being so extensively advertised, but which is of little use for any other purpose. But a smooth piece of hard wood, worked to a brush at one end, is still better for applying this powder. Do not bruise the gums while thus cleansing the teeth, but with a handglass before you, gently apply it to all parts until the tartar or discolorations are removed.

If the teeth are very close together, it will be necessary after brushing or scouring them to pass a thread between them to remove particles that cannot be reached in any other way. A waxed linen floss will pass between teeth that will admit nothing else.

But to know the greatest luxury of the toothbrush, apply it with a bountiful supply of fresh, cool water, upon first rising in the morning; and do not neglect the tongue, which should be brushed as thoroughly and as often as the teeth. Have a separate brush for this if you wish, but it is not necessary. After the quiet of the night, the entire mucous lining of the mouth is more or less furred in the morning, according to the state of the health, and this should be thoroughly brushed away before taking food. When once this habit of brushing the entire inner surface of the mouth, teeth, gums, tongue, and all, is formed, no person will wish to partake of his breakfast until the duty has been performed.

The best brushes are made of unbleached bristles, firmly wired to the back, and there is no danger of their falling out in the mouth, as in poor brushes. After having been used, the brush should be well rinsed and stood where the air will have free access to it: do not shut it up in any receptacle.

If i was goin to paint a pikter of *Faith, Affection, and Honesty*, i would paint mi dog lookin up in mi face and waggin his tail.—*Josh Billings.*

## Art of the Household.

The woman who is to be happy and useful as the maker and mistress of a home, must know the art of home-making and home-ruling. Yet how very small a place is given to the teaching of these arts in our schemes of education for girls! We should call that man a fool who hoped to see his son successful as a merchant or banker, but neglected to have him instructed in the principles of arithmetic and book-keeping. But thousands of girls are married every year who do not know how to make a loaf of bread, or to set a table, or to iron a napkin, or to make a bed becomingly. Is it expected that servants shall do these things? So the young man who is to be made a merchant or a banker will have his book-keeper to write out his accounts and make his arithmetical calculations for him; but he must understand those processes for himself, or he will be at the mercy of his servants. Moreover, in the woman's case there may not always be servants, or the means with which to command their services; and their incompetence at best needs the supervision of a mistress skilled in all their arts. This seems a homely matter, doubtless, to those persons who see the complete salvation of women in university education; but it is a matter which touches the happiness of women themselves, and closely concerns the well-being of a world whose whole life centres in and is founded upon the home. It is not too much to say that no girl ought ever to come to maturity without having acquired both skill and taste in every art of the household, or that no woman deficient in this particular can marry without serious risk to her own happiness, and to that of the persons about her. It does nobody any harm for the mistress of a household to know how to calculate an eclipse; but it is disastrous for her to be herself eclipsed by her Bridget.—*Harper's Magazine.*

Lumpy gravy has probably caused as much unhappiness to the young housekeeper as any other thing in cooking. She should know the proportions of water and flour which she can combine properly, which is always one measure of liquid to two of flour. After the gravy is thus made it may be thinned as one pleases.

Black pepper is the same as white pepper, only that in the latter case the skin or shell has been removed from the berry before grinding. Boiled onions and codfish are both better if flavored with black pepper instead of white.—*Mrs. Ewing in "Kitchen."*

Place before the children nothing but what is simple, lest you spoil their tastes; nothing that is not innocent, lest you spoil their hearts.

## Buffalo-Bugs.

"You lie down to your shady slumber
And wake with a bug in your ear."

Oh yes, I know them, I have been introduced. If there is any subject upon which I can wax eloquent, it is this same tiny beetle. Were it not so nearly tragic, there would be something positively ludicrous in a picture often seen. Imagine a lady of commanding presence, possibly an advocate of woman's suffrage, perhaps a writer of powerful essays, or a skilled musician, creeping about the floor, poking into corners, pounding upholstery and brushing draperies. What an intent expression, what a triumphant look, as she pinches a small victim between thumb and finger! The only agreeable (?) point I have ever heard mentioned about the insect is that it is "so clean to kill." Its body crumbles into fine dust at the touch. To England we owe this pest, as well as that of the condemned sparrows. We have sent to our cousins the potato-bug in return, but that hardly balances the account. Still, in England we are told that this beetle, satisfied with rich vegetation, rarely enters the houses. A Massachusetts lady states that her beds of choice tulips are just covered with them in the spring. Others have been found plentiful on maple trees. In the mature state they fly in at the windows in the early spring before the careful housekeeper thinks of screens. They lay their eggs in the softest, rarest fabrics. Woollen, silk, and cotton are all acceptable, but they prefer bright colors and light rooms. They often begin their ravages in attic chambers.

I have never been able to detect the egg and rarely the insect in the transition state which it passes through, like others of the genus beetle. As a perfect beetle, it is gray in color and its back dotted some like the lady-bug, with which it is often confounded, though much smaller. Its ravages are committed when in the hairy worm form, when its body is pointed like an apple seed. The name buffalo probably comes from its bushy appearance at this time.

Such tales of destruction have come to my ears, and not fairy tales either! Dresses hung up one Sunday have been positively riddled by the next. Sheets in the store-room have been perforated as with an eyelet-machine. Even feathers drop to pieces at their attack. Packages done up in newspapers are more secure, as they do not enjoy printers' ink. Straw matting is not exempt, and they often gambol over it with seemingly malicious enjoyment. I have often found a group under a bit of red flannel or carpeting in the centre of a room, and it serves as a very good trap. From my own experience, I am inclined to concur in the

general statement, that nothing but a "pinching method" will effect their extermination.

Closets saturated with naphtha fumes will show the insect as lively after as before this treatment. Naphtha will kill the insect if directly applied, and so will ammonia, but I doubt its efficacy in destroying the eggs.

Scholarly druggists, who are honest, say they really know nothing but persevering search which will do any good. Hot water or irons will be helpful when they can be used without injury to fabrics, but "vigilance" in mistress and maid, at present, seems a necessity.—*Good Housekeeping.*

It was a little girl who, standing by her father's side and raising the flesh from the back of his hand, between her thumb and finger, looked up to him with deep concern and said, "Your skin does n't fit you very well, does it, papa?"

### The Beefsteak.

You may talk of spring chickens and quail upon toast,
Or anything else of which epicures boast,
But when you are hungry there's nothing can take
The place of a juicy and savory steak.

Two inches in thickness it ought to be cut,
With snowdrifts of fat on it sweet as a nut;
And always remember, when buying it, that
Prime meat must be streaked and covered with fat.

Quick turn it and turn it with many returns,
While melting fat merrily blazes and burns,
Imparting rich flavors. Keep turning, and—there,
'Tis done, with its inside red, juicy, and rare.

Now pepper and salt it, and on a hot plate
Enjoy it at once—not a moment to wait;
And then you 'll acknowledge that nothing can take
The place of a luscious and juicy beefsteak.

—*Goodall's Sun.*

Waiter (handing menu card to countryman in fashionable up-town restaurant), briskly—Now then, sir, what will it be?

Countryman—Well, the fust thing I want to say is, that you 've got your sign spelled wrong outside. "Cafe" do n't spell coffee by a long sight. Ef you should start a shop down to the Corners you 'd git the grand laugh.—*The Epoch.*

### Night Air.

An extraordinary fallacy is the dread of night air. What air can we breathe at night but night air? The choice is between pure night air from without and foul air from within. Most people prefer the latter—an unaccountable choice. What will they say if it is proved to be true that fully one half of all the diseases we suffer from are occasioned by people sleeping with their windows shut? An open window, most nights in the year, can never hurt any one. In great cities night air is often the best and purest to be had in twenty-four hours. I could better understand shutting the windows in town during the day than during the night, for the sake of the sick. The absence of smoke, the quiet, all tend to make night the best time for airing the patient. One of our highest medical authorities on consumption and climate has told me that the air of London is never so good as after ten o'clock at night. Always air your room, then, from the outside air, if possible. Windows are made to open, doors are made to shut—a truth which seems extremely difficult of apprehension. Every room must be aired from without, every passage from within.—*Sanitary World.*

### A Sand-Bag for a Sick-Room.

Many persons are acquainted with the virtues of the hot-water bag, but a sand-bag is still better. Get some clean, fine sand, dry it thoroughly in a kettle on the stove; make a bag about eight inches square, of flannel, fill it with the dry sand, sew the opening carefully together, and cover the bag with cotton or linen cloth. This will prevent the sand from sifting out, and also enable you to heat the bag quickly by placing it in the oven or on top of the stove. After once using this, you will never again attempt to warm the feet or hands of a sick person with a bottle or a brick. The sand holds the heat for a long time, and the bag can be tucked up to the back without hurting the invalid.

Consider the chickens, my son; study their ways and be wise. Whenever they take to drinking their bills go up, and by keeping their bills down they find enough to eat.

It was his first visit to the city. As he stood on the curbstone shaking his sides with laughter, he was accosted by one of New Haven's finest:

"What's the fun, stranger?"

"Fun! Can't you see it? Just look how that thing [pointing to a watering-cart] leaks; why the blamed fool won't have a drop left when he gets home."—*New Haven News.*

## CONTAGIOUS AND INFECTIOUS DISEASES IN NEW HAMPSHIRE.

For the month of February diphtheria was reported to the State Board of Health from Somersworth, Wolfeborough, Stratham, Dover, East Kingston, Manchester, Lancaster, Moultonborough, Canaan, Rochester, Pittsfield, Conway, Campton, and Henniker. The largest number reported from one place was four at Stratham. No epidemic of diphtheria exists in the state.

Scarlet-fever was reported for the same period from Keene, Dover, Rye, Laconia, Manchester, Claremont, Rochester, Pittsfield, Jaffrey, Wakefield, and Goffstown. Dover reported the largest number, thirteen cases; Wakefield seven and Claremont five cases.

Typhoid fever was reported from Nashua, Manchester, Rochester, and Weare.

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## PUBLICATIONS RECEIVED.

*The Ohio Journal of Dental Science.* Monthly; $2.00 per year. A very handsome and valuable journal. Published at Toledo.

*Good Housekeeping.* A journal for the homes of the world. Published fortnightly at Springfield, Mass. $2.50 a year.

*The Sanitary News*, Chicago, Ill. Published weekly at $2.00 per year.

*Journal D'Hygiène Populaire*, organ official du Conseil Provincial D'Hygiène de la Societe D'Hygiène de la Provence de Quebec. Monthly; $1.50 per year. Montreal, P. Q.

*Health and Home*, Chicago, Ill. Monthly; $1.00 per year.

*American Analyst*, New York. Weekly; $1.00 per year.

*Notes and Queries*, Manchester, N. H. $1.00 per year. Published by S. C. and L. M. Gould.

*The Sanitary Era*, New York. Published semi-monthly at $1.00 per year.

*The Unitarian*, a Magazine of Liberal Christianity. Chicago. $1.00 a year.

*The Sanitary Inspector*, Augusta, Maine. 25 cts. per year. Published by State Board of Health. Monthly.

*Monthly Bulletin*, of the Iowa State Board of Health, Des Moines; 25 cts. per year.

*The Paper World*, Springfield, Mass., monthly, devoted to the interests of paper manufacturing machinery, &c. $2.00 per year.

*Public Health in Minnesota*, Red Wing, 50 cts. per year, monlhly. Published by State Board of Health.

THE

# SANITARY VOLUNTEER

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## SANITARY AND OTHER NOTES.

A bill has been introduced into the Michigan legislature to regulate the practice of medicine and surgery in that state, and as usual in all such attempts to protect the people against charlatanism, an army of quacks, spiritualistic frauds, Christian science humbugs, etc., are working hard to defeat the measure.

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Dr. G. G. Tyrrell is still the secretary of the State Board of Health of California, which position he has ably filled for several years past. On account of political differences the governor attempted to remove him, and nominated his successor. The senate refused to confirm the nomination, on the ground that questions relating to the state board of health, prisons, insane asylums, etc., should not be dragged into the arena of politics.

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Newly chosen boards of health should remember that they are required to render a monthly report upon contagious and infectious diseases to the state board of health. Suitable blanks are furnished upon application. Physicians should also bear in mind that a prompt report of all cases of diphtheria, scarlet-fever, and typhoid fever should be made to the local board of health.

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Mr. James L. Dixon has been chosen health officer of Laconia for the ensuing year. He has already issued a set of health regulations which have been approved by the selectmen of the town and by the state board of health. We hope the regulations will be faithfully and impartially enforced.

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The state board of health has published the health laws of the state in pamphlet form for the use of health officers and local boards of health. The laws are arranged for convenience in respect to the subject sought,

and a copy will be sent to any health officer in the state upon application.

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Physicians should be careful and specific in certifying to the cause of death. A certificate of death was recently returned to one of our state life insurance associations, which stated that the person named died of "heart-failure." The medical board declined to accept the certificate, on the ground that the term had no particular meaning regarding the specific cause of death.

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In some unaccountable way, in our last number, we substituted the name of Dr. J. T. Reeve, secretary of the Wisconsin State Board of Health, for that of Dr. J. F. Kennedy, secretary of the Iowa State Board of Health. We therefore extend an invitation to both of these eminent gentlemen to visit New Hampshire, and would ask them to pass this invitation around to the secretaries of all the state boards of health. The "Old man" and the "Lady" will be "at home" in full dress from July 1 to Oct. 1.

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The Massachusetts State Board of Health reports that a preparation offered for the cure of asthma, and bearing the name of P. Harold Hayes, M. D., of Buffalo, N. Y., was found, upon analysis, to contain quite a large quantity of arsenic. Cases of poisoning were reported from its use. The public should avoid all such preparations. Consult a reliable physician if necessary, but never purchase advertised nostrums gotten up for the sole purpose of money-making.

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In referring to the "Annual Report of the Supervising Surgeon-General of the Marine Hospital Service of the United States for the fiscal year 1888," *Science* says,—It is much to be regretted that the supervising surgeon-general should, in an official report, have attacked the National Board of Health, and the excellent work which it did during the days when it had the power and the means. He charges Dr. Bowditch of Boston with "special pleading for a pet object," when, in September last, he expressed in a public letter the wish that a new birth might be granted to the national board, with greater powers. The supervising surgeon-general speaks of this letter as being "ingeniously constructed," and further says that unfortunately the facts do not bear out the statements therein contained. If men of the standing and reputation of Dr. Bowditch can be thus attacked in governmental reports, we shall wish that some censorship may be established to which these reports shall be submitted before they are permitted to go forth with the official sanction.

The Massachusetts State Board of Health has been directed by the legislature to inquire into the character of the ice that is being gathered for domestic uses by dealers in that article. The board has already caused a great many samples to be analyzed. Inasmuch as the winter has been unusually mild and the ice crop not up to the average, the board has obtained a few samples from this state, from some of our best sources, for the purpose of comparison, and to determine the average quality of ice from supplies believed to be uncontaminated. The investigation which the board is making will be published later in the year, and we shall look for a most valuable and conclusive report upon the subject of ice pollution.

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We would suggest that the city government of Manchester appoint a committee to examine and revise its ordinances relating to public health matters. No such revision has been made for years, and as a consequence there are in existence ordinances that should be repealed, others that should be amended, and probably it would be found advisable to enact some new ones. The rapid growth of the city, its splendid water-supply, its extensive sewer system, its increasing density of population, and many other conditions coincident with its marked development, necessitate a careful consideration of all the ordinances bearing upon the question of health.

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It is amusing to see with what alacrity quacks and charlatans will seize upon any opportunity to gain a little notoriety. In the attempt they will blindly and inconsiderately dash their brainless heads, so to speak, against the very bulwarks of science and established facts. Personal advertisement for selfish purposes is their sole aim and ambition. Such an opportunity has just been afforded in the hearing upon the question of compulsory vaccination before the Public Health Committee of the New York Assembly. A certain New York doctor appeared, and opposed the measure with the old and worn-out arguments of the anti-vaccinationists, and a synopsis of what he said was made prominent in the press report (probably by an arrangement previously made), while the logical and disinterested arguments of such able and well known physicians and sanitarians as Dr. Cyrus Edson, of the New York City Board of Health, Dr. Lewis Balch, secretary of the state board of health, and Dr. Edward Clark, health officer of Buffalo, in favor of the bill, were not mentioned. It is gratifying, however, to know that the committee was composed of men of sense, and that the passage of the bill was recommended.

## A BOARD OF HEALTH FOR EVERY TOWN.

The annual March meetings have changed the officers in many towns in the state. This is true regarding local boards of health. In some places a board was elected, but in a majority of towns no action was taken at the town-meeting. The law makes the selectmen the board of health, in the absence of any others elected or appointed to such position. The selectmen are elected, or are supposed to be, for the purpose of transacting the financial and general business of a town, and not upon the qualifications that should be possessed by a health officer. If the selectmen feel like assuming the duties and responsibilities of such a position, and are willing actively to perform the same, there is no serious objection to their serving, but ordinarily it is better that the selectmen should appoint a health officer, or a local board of health. The provisions under which such an appointment can be made are as follows:

The selectmen of any town that has neglected to elect a health officer or officers may appoint one or more health officers for said town, as in the judgment of the selectmen may be necessary; but if no health officer or officers shall have been elected or appointed, it shall, upon the petition of ten or more legal voters, be the duty of the selectmen to appoint one or more health officers, as in their judgment may be necessary.—P. L. 1885, *c.* 14, *s.* 1.

There is work for an active board of health in every town in the state. The time has come when the prosperity of many of the towns in New Hampshire is measured in no small degree by their healthfulness. Especially is this true of those towns that receive summer boarders. Very few, if any, towns can afford to do without a local board of health, and there is no town in the state where there is not an ample amount of work for such a board. Too often diphtheria, scarlet-fever, or some other contagious disease sweeps off the innocent children, while the voice of authority is silent; typhoid fever infests a whole community, and a legal inquiry into its cause is not suggested. Dysentery and cholera infantum seize their victims, and no hand of authority is raised against the slaughter that is more or less preventable. Such economy is criminal extravagance. An active board of health can do very much toward reducing and limiting conditions that invite disease, as well as to hold in check, by isolation, disinfection, etc., diseases that might otherwise spread through an entire community.

We strongly advise the appointment of an efficient health officer or board of health in every town not already provided for in this direction.

## A DISINFECTANT FOR FAMILY USE.

There is no better or cheaper disinfectant for general use in and about the premises than chloride of lime, although it is occasionally objectionable in some places and to some persons on account of its odor. This quality should not lead any one to believe that the liberated chlorine, which has such a pungent smell, is in itself of any value as a disinfectant. It may do to cover up other odors, but that is not disinfection. A disinfectant must have the power to destroy minute forms of life, like the germs of disease, and to arrest certain organic and chemical processes, to be of any value. Many of the so called disinfectants are simply deodorants, that is, preparations which destroy or cover up odors, but do nothing more: hence, applied as a disinfectant, they are of little or no value.

Chloride of lime ought to be obtainable at any drug store at ten cents a pound, and in some places it can be bought for five cents. The best way to use it is in a solution, as follows:

| | |
|---|---|
| Chloride of lime, | one pound. |
| Water, | three gallons. |

Mix.

This mixture makes a perfectly safe and efficient disinfectant, and may be freely used in vaults, sink-drains, cesspools, or wherever there is filth requiring a disinfectant. It is also equally valuable for use in disease, to disinfect all matters coming from the sick-room.

The cheapness of this valuable disinfectant should bring it into very general use. Disinfection should not for a moment be regarded as a substitute for cleanliness, but only as one means of securing greater cleanliness than could be obtained without it. Its use in the sick-room is to destroy immediately all the disease-bearing material that is eliminated by the infected person. For use among the people generally, the chloride of lime solution is probably the best disinfectant that can be employed.

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## MEMBRANOUS CROUP AND DIPHTHERIA.

There is scarcely any doubt that membranous croup and diphtheria are one and the same disease.

Like precaution against infection should be used in either case. Membranous croup must not, however, be confounded with the not infrequent cases of spasmodic croup, for the two conditions bear no relations to each other.

Membranous croup is a very fatal disease, and is to be dreaded in every family: upon its appearance medical advice should be immediately

summoned. In this form of disease the membrane appears in the larynx (windpipe), and produces upon coughing the characteristic sound which is often the first warning to the parents that the child is seriously ill. Dr. E. L. Ditwater reports, in the *Virginia Monthly*, a fatal case of croup immediately followed by diphtheria in the same family. The patient was a little girl. He says,—

"On making an examination of the throat, I noticed a white ring or band of membrane encircling the larynx, but a long way down, just visible; I also noticed considerable hypertrophy and inflammation of the tonsils. So, by the history, appearance of the throat on inspection, and the fact that spasmodic croup was not known in the family, I felt no hesitation in making a diagnosis of membranous or true croup. At the same time I expressed a doubtful prognosis. . . . . And in about twenty-four hours from the time I was called, death took place,—by asphyxia, from what I could learn.

"Two days later I was again called to see two of the other children, aged eight and fourteen years respectively, the older of which was suffering quite severely from a sore throat. On examination of the patient I found a temperature of 103° (morning) and pulse 135, great tenderness about the throat, and a very fœtid breath; gagging and retching were induced when an attempt was made at ocular examination. When it was finally accomplished it was noticed that the throat and fauces were already in a sloughing condition, and grayish white patches of membrane were over it. There was extreme prostration and depression of the vital powers; and as the membrane was not confined to the tonsils, and showed bare and bleeding surfaces where it had sloughed off, and no normal mucous membrane, I diagnosed it a case of diphtheria. . . .

"Now, what was particularly interesting to me was, that there were no other cases of diphtheria anywhere around, nor has any happened since, save another sister of the case described (who lives a couple of miles from home, and came to visit the case of croup before the contagious nature of the disease was suspected), who took diphtheria in a mild form. She also recovered. Another sister who lives in the other direction was at home the same time, and also had a sore throat when she returned to her vocation.

"I cannot help but think that the disease was caused by some local infection about the place, as the family did not live in the most hygienic surroundings, but rather the reverse. And it also looks to me that the three cases of diphtheria and cases of sore throat were contracted from the case of croup, or that the same cause which occasioned croup in the child also operated to produce diphtheria in the other members of the family—a fact, it seemed to me, which, if proven, would go a long way

toward establishing the identity of membranous croup and diphtheria, or, if not identical, at least very closely allied in their etiology, but differing quite considerably in their symptoms and effects."

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## THE CHOLERA COMMISSIONER.

In 1885, Dr. E. O. Shakespeare, of Philadelphia, was appointed United States Cholera Commissioner, and immediately after his appointment went abroad for the ostensible purpose of investigating cholera, then extensively prevailing in southern Europe. The medical profession and the sanitarians of this country have waited patiently for Dr. Shakespeare's report, but it has not yet appeared. It seems, from the following letter from Secretary Bayard to Congressman Washington, that it is not certain that Dr. Shakespeare will make a report for some time to come, if indeed a report is ever rendered.

DEPARTMENT OF STATE,
WASHINGTON, Feb. 5, 1889.

*To the Hon. J. E. Washington, House of Representatives:*

SIR: In reply to your letter of the 30th ult., inquiring in regard to the appointment, expenditures, and report of Dr. E. O. Shakespeare as representing the United States Cholera Commission, I have the honor to inform you that a certificate of appointment was issued by this department on the 1st of October, 1885, to Dr. E. O. Shakespeare, designating him, as the representative of the United States, to proceed to Spain and other countries in Europe where cholera existed. On the 5th of October, 1885, and the 12th of January, 1886, letters of credit on London were issued in favor of Dr. Shakespeare for $2,000 and $1,000, respectively, making an aggregate of $3,000. Dr. Shakespeare drew the whole of this amount, but has as yet rendered no account of its expenditure. On the 13th of June, 1887, the department wrote to Dr. Shakespeare expressing regret at the delay in submitting his report on cholera, and hoping that it would soon be completed and sent. On the 18th of the same month Dr. Shakespeare replied, saying that he hoped to be able to submit his report in two weeks. Since that date nothing has been heard from him on the subject officially, but through private letters received from him it appears that he found great difficulty in having the drawings made of his microscopic studies of microbes, which would account for the delay in getting out his report.

I have the honor to be, sir,
Your obedient servant,
T. F. BAYARD.

It is three and a half years since Dr. Shakespeare was commissioned to investigate cholera, and almost two years since the Department of State reminded him of his tardiness, and to which he replied that he "hoped to be able to submit his report in two weeks."

The *State Board of Health Bulletin*, of Tennessee, from which the above letter was taken, says that two points are now established:

"(*a*) That E. O. Shakespeare, M. D., is a reality, and not a myth; (*b*) that as soon as the portrait of his highness—the microbe—can be properly executed, so all may see and know him as he is, the report, it is promised, will be filed with the government for publication.

"Now, in all kindness, we say if Dr. Shakespeare failed to see a case of cholera in his jauntings through Europe in 1885, or, seeing, is unable to tell what he did see, let him frankly say so, and refund to the government the money expended by him."

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## ONE WAY TO PRODUCE DE NOVO CASES OF SCARLET-FEVER.

A Frenchman, living a few miles from Manchester, recently took a child that had been ill a few days, upon the train, and went to the city named to consult a physician. The case proved to be a marked type of scarlet-fever. The father was told the nature of the disease, and that he ought to get a team and take the child home privately. He protested that he was not able to hire a team, and should return on the train, which he did, with the child.

Let us suppose there were two or three children susceptible to the disease in the car which this man and his child occupied. These children live in different localities, in healthful homes, with no scarlet-fever in town. In a few days they come down with the disease, and no investigation satisfactorily accounts for the outbreak. They are sporadic cases, and are believed by some to have originated *de novo*. In some such manner as this may all the supposed *de novo* cases be accounted for.

In an instance like the one alluded to the spread of the disease might be quite extensive, as well as inexplicable, by reason of the infection remaining in the car for an indefinite period. Until the avenues of infection are better guarded against than at present, we must not be at all surprised at the appearance of sporadic cases of scarlet-fever, but we do not need to call upon our imagination to the extent of inferring that such cases arise *de novo*.

## THE ORIGIN AND PREVENTION OF TUBERCULOSIS.

BY D. E. SALMON, D. V. M.,

*Chief of Bureau of Animal Industry, Department of Agriculture, Washington, D. C.*

There can be little doubt in the mind of the thoughtful sanitarian that questions relating to the origin and prevention of tuberculosis will, for years to come, be among the most important subjects that will attract his attention.

In the census of 1880 there were reported for the year 91,551 deaths from consumption in the United States. We find it necessary to make a correction here, in order to give the actual mortality from this disease. The total number of deaths from all causes, reported to the census officers for that year, amounted to but 15.1 per thousand inhabitants, while they admit that the actual number of deaths was between 17 and 19 per thousand inhabitants, or, as nearly as could be ascertained, 18 per thousand. There were consequently 3 deaths per thousand inhabitants that were not reported; and to obtain the correct number we must increase the figures, as given in the census, to the extent of 20 per cent. Admitting, now, that the number of deaths from consumption should be increased in the same proportion as the general death rate, and we find that the mortality from this disease in 1880, instead of being 91,551, was actually 109,861.

Since 1880 the population of the United States has increased from about fifty million to over sixty million of people. If, therefore, we desire to know the actual mortality from consumption in this country at the present time, we must increase the figures given for 1880 by at least 20 per cent. This gives us as the present annual mortality 131,833.

Now, consumption, as we know, is but one form of tuberculosis. The bacillus of this disease, instead of selecting the lungs for its habitat, may prefer the brain or the abdominal organs, or other portions of the body. It may well be doubted if the number of deaths from these different forms of the malady can be calculated from existing data with even approximate accuracy; but I think it would be a moderate estimate to place the total annual number of deaths, now caused in the United States by the bacillus tuberculosis, at 150,000. We are so accustomed to using large numbers in this generation that there are few of us who stop to ask ourselves a question as to the significance of this enormous number of deaths in our country each year from this malady. It means that for every hour of the day and night not less than seventeen of our people fall victims to the attacks of this insatiable, microscopic destroyer. It

means that within the brief space during which I occupy your attention this evening, more victims will be claimed in the United States by this ever-present demon than have fallen by the hand of the notorious Whitechapel fiend during the weeks that the world has been horrified by his crimes. And while in the latter case we should be inexpressibly shocked at any neglect on the part of the authorities which would tend to increase the number of deaths by a single victim from the slums of London, we see this other enemy of human life entering the homes of the high as well as the low, striking down indiscriminately the brightest, the loveliest, the most useful of our citizens;—and what we are doing to arrest its ravages? And to make the matter still worse, we know where the destroyer lives, and we have his photograph in our possession.

The blame for this apathy is not all to be placed upon sanitarians, however. We may be guilty with the rest of our people, but without a strong and enlightened public sentiment to support our boards of health, what can they do, in a work of this magnitude, which will largely increase their expenditures, and which demands the exercise of arbitrary power? Such a public sentiment is rapidly being formed; there is an increasing demand for adequate measures for the prevention of this disease; and I venture, therefore, to take up the matter in a general way, hoping that discussion will lead to further consideration, and that in the end our ideas may become better defined, and that action may be agreed upon which will mitigate if it does not control the losses from this plague.

I assume that it is unnecessary before this Association to enter into any arguments to demonstrate that tuberculosis is a specific, communicable disease, that it is caused by the well defined germ which we know as the *bacillus tuberculosis*, and that without the presence of this particular germ the specific disease in question cannot be developed. With this admitted, it is extremely important for us to inquire where this microorganism lives and mutiplies, how we come in contact with it, and by what channels it gains an entrance into the bodies of men and animals.

The careful investigation that has been made by scientists of the life-history, characters, and conditions of growth required by this microbe, makes it apparent that in our climate, at least, its multiplication does not occur outside of the human or animal body to a sufficient extent to demand the consideration of sanitarians. Its reproduction and development take place within the body, and every individual who is affected with it has obtained it, either directly or indirectly, from some other person or animal that was previously affected with it. These statements must be accepted as axioms by sanitarians before we can hope for substantial and satisfactory results in the prevention of this terrible malady.

The contagiousness of tuberculosis among cattle is so apparent that it

was admitted on all sides by veterinarians long before Koch discovered or cultivated the parasite. With people, as you know, the case is different, and its contagiousness has been strongly contested; and it is only recently that sanitarians have generally admitted that it may occur in a limited number of cases. From a study of the facts which bear upon this question, it appears to me that the greater contagiousness in the one case is due simply to the conditions of life. We know that when the lungs are affected, the sputum contains myriads of the peculiar germs of this disease, and that the dissemination of the germ from the diseased person must be chiefly through this medium. On the other hand, experiments make it reasonably plain that the germ must find its way into the body either by the respiratory organs, the alimentary canal, or through wounds on the surface of the body. It is apparent, therefore, that, with the conditions of life under which we live in this country, it is not to be expected that the contagiousness of tuberculosis can be made very clear except with persons in such relations as husband and wife, where saliva may be transferred in the act of kissing. But judging from the newspaper accounts of domestic infelicities, we should not be astonished at the rather rare cases which have been recorded where the disease was evidently contracted by the wife from the husband, or by the husband from the wife. Perhaps a more conclusive reason why such recorded cases are rare is the fact that the contagiousness of tuberculosis has not until recently been accepted by physicians; and even now, a considerable proportion of all those who graduated longer ago than five years reject this doctrine, and have serious prejudices against it. As a result, I am convinced that many clear cases of contagion have not been referred to this cause.

Contagion from dried sputum, or that which is partially dried, would pass unnoticed, because people are nearly as much exposed to consumption outside of their families as within them. Who has noticed the wholesale use of unwashed drinking-cups at our hotels, railway stations, and other public places, without seeing there a means by which the bacillus tuberculosis can be widely scattered by sputum or saliva without the remotest chance of tracing the contagion? Again: When we see how tuberculous sputum is distributed over our streets and sidewalks, to be dried by the winds, ground into powder by the feet, and then carried by currents of air into our mouths and nostrils, how can we expect to trace the entrance of this germ into the body, and determine by observations upon people whether it is or is not contagious from man to man? We are all more or less exposed to contagion from persons *outside* of our families; and if we do not contract the disease and die of it, it is probably because nature has endowed us with a degree of immunity which

enables us to resist the dose of these germs which we are accustomed to take, and for that reason we are spared.

When we observe this disease as it occurs among cattle, we find it much simpler to trace the contagion. Different herds of such animals are practically isolated; and an outbreak of tuberculosis in a herd can usually be traced to the introduction of an affected animal. Owing to the opportunities for contagion,—feeding out of the same mangers, eating forage soiled by saliva, drinking from the same vessels,—the infectiousness of the disease is frequently extremely well marked. I know herds in which the malady has existed for years. There is one instance in my mind where the introduction of a tuberculous cow, in a thoroughbred herd, affected nearly every animal, breaking up the herd, and causing a loss of from twenty to thirty thousand dollars. Instances where this disease is introduced and spreads through whole herds are now so frequent that every veterinarian I am acquainted with, who has a cattle practice, is thoroughly convinced not only that the malady is contagious, but that it is easily transmitted.

This brings up the question as to the identity of human and animal tuberculosis, and I unhesitatingly answer it in the affirmative. Not only are the germs in the two cases indistinguishable under the microscope, but their growth in different culture media and their other biological characters are identical. Again: The infection of swine, rabbits, fowls, etc., from man produces the same lesions as when these animals are infected from the bovine species. The infection of man from cattle is a proceeding which can hardly be undertaken experimentally, except in rare instances. It is said to have been successfully accomplished, however, in one case. What is of more consequence, we have the observations, which now begin to accumulate, connecting tuberculosis in man with the use of milk from tuberculous cows.

Admitting the identity of tuberculosis in man and animals, and many important questions suggest themselves to us in regard to the propagation and prevention of this disease. What animals have we to fear? What are the media of communication? How can we guard against infection? What momentous questions are these! I can only answer in general terms. The time at my disposal is too brief for details. Notwithstanding the fact that swine are very susceptible, as shown by experiments, tuberculosis in these animals appears to be a rare disease. This is probably, in some degree, because hogs are slaughtered at from six months to two years old, and there is not with them the opportunities for the development and propagation of a disease so slow in its progress. The same remark may be applied to fowls; so that for practical purposes it is the bovine species to which we must direct our attention as the one

most frequently affected, and from which most danger is to be apprehended.

I am unable to give you data to show the proportion of the cattle in this country which are affected. The disease is probably no greater than in other countries, but its widespread prevalence is certain. I have encountered it from the Atlantic ocean to the Rocky Mountains; and, having been no farther west, I cannot speak for the Pacific slope. It is most frequently seen in milch cows, but often also in beef cattle. An inspection of about half a million head of cattle, mostly dairy cows, which has been made during the last two years by the Bureau of Animal Industry in the work of eradicating pleuro-pneumonia, has brought herds affected with tuberculosis very frequently to my attention, on account of the difficulty which sometimes is met with in making a differential diagnosis.

Experiments upon other animals show that the contagion is contained in the tuberculous matter, in the liquids expressed from the affected organs, often in the milk, and sometimes at least in the blood and in the juices expressed from the muscular tissue. Whether butter and cheese may serve as infecting material has never, to my knowledge, been determined. That oleomargarine, butterine, and similar mixtures, which contain oleo oil, a substance expressed at a low temperature from tissues frequently tuberculous, may also be infecting, goes without saying, if we accept the results of the experiments to which allusion has just been made.

The effect of cooking upon tuberculous material has not been worked out as carefully as is desirable. The experiments of Toussaint and others, however, show that the disease is produced by infectious substances even after they have been subjected to a boiling temperature for a considerable time. The inference is, that beef cooked according to prevailing ideas, and particularly when very rare, has not been subjected to a sufficient temperature to destroy the germs. We conclude, therefore, that from a sanitary point of view bovine tuberculosis is dangerous to the public health, and that the contagion may be conveyed in either the beef or the milk.

With all these facts before us, what action is indicated to lessen the mortality caused by this disease? I have my doubts if direct contagion from affected people is a sufficiently important factor in the production of tuberculosis to warrant such action as would be needed for its prevention. Sputum might be disinfected more often than it is without causing hardship to any one. It appears out of the question to isolate affected persons; and I certainly have not the hardihood to attack the time-honored practice of kissing, even when restricted to husband and wife. And

when it comes to kissing between lovers, and even among members of the fair sex when they meet and part, I must leave it to some of the older members of the Association to make recommendations. Drinking-vessels at water fountains and about public places might be kept cleaner than at present, and public sentiment created against their use in common to the extent now seen.

The most important matter, however, which presents itself to me is, to guard the food-supply from contamination. The carcasses of tuberculous cattle or of other animals should be condemned and destroyed. Our dairy cattle should be inspected regularly, and every animal affected with this disease should be slaughtered, and put beyond the possibility of doing harm. If you ask for the details of this work, to whom it is to be entrusted, where is the money to come from, how marked the results will be upon human tuberculosis, I am not in a position to give satisfactory answers. My idea is, that as public sentiment develops, the boards of health will gradually cover this ground, and that all will see that the value of the work is greater than its cost. The complete eradication of tuberculosis may be a dream, but it is none the less a duty to protect the public health against its fatal contagion in every practicable way; and to stop its dissemination by tuberculous cattle appears to me the easiest and one of the most promising steps in this direction.

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## THE TRUE RELATIONS OF FILTH TO DIPHTHERIA.

"Diphtheria is a contagious disease. There is probably no spontaneous origin of diphtheria, any more than there is a spontaneous origin of cholera or scarlatina. When an attack of diphtheria has made its appearance, it is well enough to examine the hygienic condition of the house, *with its deteriorating influences on the general health of the inmates, and look after the source of the case* in the persons of friends, attendants, and help."

In my "Remarks on the Nature and Treatment of Diphtheria," made by invitation before the Section of Diseases of Children of the British Medical Association, August, 1888 (*British Medical Journal*, September 22, 1888), there are found the following sentences: "*Foul air and sewer gas do not create diphtheria;* they do create dysentery and typhoid, or such a condition of general ill-health and malaise as to afford the diphtheritic virus a ready resting-place. There were plenty of malodorous privies and foul smells fifty years ago, but no epidemic of diphtheria. Besides, and mainly through the careful observations of English physicians, such as are contained in Dr. George Turner's report on diphtheria in lower animals and many others, the sources from which

diphtheria may come are very many. Pigeons, fowls, turkeys, chickens, pheasants, cats, horses, sheep, cows, are just so many sources of diphtheria for man. Foods of all kinds, vegetables, and milk will transmit it. It sticks to furniture, floors, and wall-paper, railroad cushions and school desks. No spontaneous generation is required to explain its ravages."—*A. Jacobi, M. D., Archives of Pediatrics.*

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## WATER FOR THE BABY.

A physician being called upon to visit a sick child, found the babe in apparently good health, but crying and struggling continually as though suffering extreme pain and anguish. The mother stated that the child was desirous of nursing continually, and in order to quiet it she had been obliged to let it nurse as often as the crying paroxysms came on. When that failed to quiet it, paregoric or soothing syrup had been administered.

"When did you give the babe a drink of water last?" inquired the physician.

"I do n't remember," replied the mother. "I seldom let him drink any water. Does he need it?"

"Need it!" exclaimed the doctor. "Why should he not need it as much as you? The child is suffering from thirst—nothing more."

He accordingly called for cold water, gave the infant a few tablespoonfuls, and it immediately ceased crying and fretting, and soon went peacefully to sleep, enjoying a long, refreshing slumber, the first for many hours. Mothers and nurses should remember this. Infants who nurse may often suffer torment for the lack of a drink of water. Often a child cries from nothing but thirst; therefore use common-sense, and instead of dosing it with poisonous compounds, give the little sufferer all the water he wants.—*Lillian Thorne.*

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## A SAFE CORDIAL.

It is true that milk heated to much above 100 degrees Fahrenheit, loses for a time, in a slight degree, its sweetness and density. But no one who, fatigued by over-exertion of body and mind, has ever experienced the reviving influence of a tumbler of this beverage, heated as warm as it can be sipped, and with or without a teaspoonful of sugar, will willingly forego a resort to it because of its being rendered somewhat less acceptable to the palate. The promptness with which its cordial influence is felt is indeed surprising. Some portion of it seems to be digested and appropriated almost immediately, and many who now fancy they

need alcoholic stimulants when exhausted by fatigue, will find in this simple draught an equivalent that will be abundantly satisfying, and far more enduring in its effects. There is many an ignorant, overworked woman who fancies she could not keep up without her beer; she mistakes its momentary exhilaration for strength, and applies the whip instead of nourishment to her poor, exhausted frame. Any honest, intelligent physician will tell her that there is more real strength and nourishment in a slice of bread than in a quart of beer; but if she loves stimulants, it would be a very useless piece of information. It is claimed that some of the lady clerks in our own city, and those, too, who are employed in respectable business houses, have been in the habit of ordering ale or beer at the restaurants. They probably claim that they are "tired,"—and no one who sees their faithful devotion to customers all day will doubt their assertions. But they should not mistake beer for a blessing, or stimulus for strength. A careful examination of statistics will prove that men and women who do not drink can endure more hardships, and do more work, and live longer, than those less temperate.—*Monthly Bulletin of the R. I. State Board of Health.*

## THE SICK-ROOM.

Some one has said that all women are born nurses, which is as absurd as to say that all men are born physicians. Some women are as incapable of caring for the sick, as they are capable in other things. The majority of women have the desire to lighten the care of the invalid, but only a chosen few are really capable of attending conscientiously to this work. Some women are of such nervous, excitable temperaments, that, no matter how good their intentions may be, their presence in the sick-room will do more harm than any good they can accomplish. Seldom can women such as these control their nerves long enough to visit a sick person: then how absurd it is to think they could ever be successful nurses. Most invalids, confined to one room for any length of time, are at certain times inclined to be fretful; and at such times it is very important that the nurse shall be calm and unruffled, and by her manner more than by words soothe the patient, where an excitable temperament would irritate. It is very seldom, indeed, that a quick, energetic, nervous person accomplishes much as a nurse, unless it is the discomfiture of her patient. In a slight illness, to be sure, it does not matter very much, but in an illness of long duration it is very important that the nurse be carefully chosen, for in some diseases more depends upon the nurse than upon the physician.

Most children, during illness, are impatient of strangers, and, where it

is possible, the mother is always the best nurse for them; but where it is so that she cannot possibly attend to them, care should be taken that the person chosen as a nurse is fond of children. It is very hard for a little one, who has been accustomed when in good health to have all his wants attended to by the mother alone, that in sickness, when these needs are generally doubled, he must rely on a stranger to supply them; but since such must be the case, he should have as an attendant one whom he will like, for most children recognize very quickly their friends. A child ought never to be compelled to accept as an attendant a person he dislikes, nor, indeed, ought any one unless it cannot be avoided.

The sick-room ought to be as cheerful as possible, and, if practicable, should be on the sunny side of the house. To be sure, there are some diseases, such as affections of the eyes and some few others, that require exclusion from the sun; but in the majority of diseases, the sunlight is a powerful curative agent in the sick-room. The furniture should be light, and only as much of it as is actually necessary, for there are few things so annoying to a good nurse as an over-furnished room, as it is almost impossible to keep it in order. Draperies of any kind are not suitable, for, if the disease be contagious, they are of all things the most dangerous. In only a few days' illness they do no material harm, but in a long illness they ought never to be allowed in the room; but if there at first, ought to be removed immediately. They are famous harborers of dust, and the less of this allowed to collect in the room the better. Hang nothing but bright, cheerful pictures on the walls, and these, with the furniture, ought to be changed about occasionally, to vary the monotony of the invalid's surroundings. Have at one side of the room a screen, behind which place the table on which the medicine, spoons, glasses, etc., are kept, and never, only while using, allow any of these articles in sight of the patient.

Wash the medicine glass and spoon immediately after using, if possible; but when this cannot be done, let them lie in cold water until time can be given them. Never allow food to remain for any length of time in the room, and if it be necessary that drinking-water should remain, always keep it covered closely, for if left uncovered it will be unfit to drink. It is best to keep all drinks in a room adjoining the sick-room, but where they are used frequently, it is more convenient for both nurse and patient to have them near at hand; consequently they may be kept in the same room, but, when not in use, closely covered. Flowers, although they may give pleasure to the patient during the day, ought not to be allowed to remain in the room over night, unless in very small quantities. Fruits would best be kept out of the room until wanted.

In the matter of the nurse's dress, almost any kind of soft, serviceable goods may be used, but it must be something that will wash, such as

cambric, satine, etc.; but never on any account should it be starched. There are few things so annoying to an invalid as the rustle or swish of a stiff dress every time the nurse moves. Soft, quiet colors are the best, and any shade of gray is pleasanter to the eye than any of the other colors. Light woollens are used by many nurses, and are very good unless the disease is contagious, when they become actually dangerous. In these cases they ought never to be used.

In the matters of ventilation a physician's advice is always in order; but where the disease is not of a dangerous form, the room ought to be ventilated each morning, by first covering the patient with the bed-clothes, allowing only a small breathing space, then lowering the windows from the top and allowing them to remain in this way for ten or fifteen minutes, at the least. To be sure, in very cold or damp weather this should be omitted, depending for ventilation on the door and whatever comes in through the crevices of the windows. Never trust to any one but a physician as to ventilating the room where there is a disease of the lungs.

There are some people who, when in a sick-room, always talk in whispers, thinking that talking in their natural tone will disturb the patient, while the very opposite is the case. If the sick person is asleep, no one ought to be allowed in the room but the nurse and physician; but if awake—for an invalid is not always asleep when the eyes are closed—the hearing is very acute and the imagination exceedingly vivid: consequently never allow whispering in the sick-room.

The nurse ought to keep herself in good spirits and health; and to do this she ought to eat freely of nourishing food, and each day take an airing of at least half an hour when possible. It is to the interest of the patient that the nurse be kept in good condition, and the family should see that this is accomplished so far as lies in their power.

—*The American Cultivator.*

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Des Moines, Ia., has a crematory for the city refuse which cost only $1,700. As an indication of its effectiveness there was at one time recently burned in it, in one hour, two dead horses, seven dogs, eighteen barrels of garbage, three hods of manure, fifteen bushels of rotten eggs, and three barrels of rotten fish, and no offensive smell was emitted.—*Ex.*

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Sufficient fresh air, sufficient food, and sufficient rest and sleep are the watch-dogs of health, and where they are on the alert consumption can never enter.—*Lawrence F. Flick, M. D.*

# DOMESTIC VARIETIES

### On Stewing, Boiling, and Simmering.

Few people understand the difference between stewing, simmering, and boiling.

Stewing and simmering are more akin, but, nevertheless, there is a great difference, and that difference is, that meat simmered has to be eaten by itself,—that is, that the water or stock in which it is simmered is required for something else, and the meat taken out when sufficiently cooked; and that meat is stewed, when both meat and liquor are to be eaten together.

Stewing is very much favored by foreign cooks, the French in particular. It is certainly the most economical method of cooking meat, not only on account of the small quantity of fire required to keep up the gentle simmering, but also because food may often be rendered tender even if coarse and hard, as a very low temperature in a very long time helps to make tough meat not merely eatable but palatable.

The stew-pan should have its lid fitting very tightly, and, if possible, it should never be removed during the stewing. It is a good plan to put a weight on the lid to keep it down, and the process is best carried out on a stove with a gentle fire. The stew should be constantly watched, and never allowed to approach boiling point, and the ebullition, though gentle, should be continuous. One of the best plans for stewing is to put the meat into a jar with its lid tightly fixed, and stand it in a saucepan of fast-boiling water, when all the real goodness and juices of the meat are extracted. Buckmaster, the great authority on these things, says stewing is a gradual simmering. It may be done in a saucepan over the fire, or in a stone jar which will stand the fire, with a lid fitting steam-tight. Meat should be selected free from blood, and the quantity of water should be about a quart to a pound of meat, the liquor of which would be very rich, and could easily be reduced, if necessary, with warm water; a teaspoonful of salt to a quart of water should be added at the end of the cooking. To quote his own words, he says,—"Bring the water gradually to the boil, remove all scum, and let the contents simmer till the flavor of the meat is absorbed in the liquor. Remove all the fat. All and every kind of meat will do for a stew. They may be used together or separately. The better the meat the better the stew." All the gristly parts,—feet, shanks, knuckles,—should be stewed. There is no other way of cooking these parts to advantage. They require time, which is often

the difficulty and an objection. Those pieces known in butchers' shops as "block ornaments" make a most delicious stew. The vegetables, as a rule, except potatoes, may be cut into slices and cooked in the stew, or they may be cooked separately and added afterwards.

In boiling, the great thing is not to let the meat boil. This may appear a curious contradiction, but nevertheless it is right. When the water in a saucepan bubbles at the top and steams, it is *boiling*. *Simmering* is keeping the water nearly boiling, and little tiny bubbles every now and then come up at the edges, and it must never be allowed to go beyond this state.

In boiling a leg of mutton it should be put into fast-boiling water, and allowed to *boil* for five minutes, to make the outside hard and prevent the juices escaping. Just sufficient cold water should be added to reduce the temperature, and then bring it gently to the boil, and when on the point of boiling *skim it carefully* (which is most important); then draw to the side of the stove, and let it *simmer* slowly. Meat boiled quickly is always hard and tasteless, and it should be remembered that a very large quantity of water takes the goodness out of the meat. A saucepan only sufficiently large to hold the joint easily should be used, and just cover the meat with water. The time for boiling should be from a quarter of an hour to twenty minutes to each pound of meat, counting from the time the water boils.

Puddings should be plunged into plenty of boiling water, and kept boiling quickly till done.

Salt meat must be put into cold water, which should then be slowly brought up to the simmering point.

In boiling fish, all *large* white fish should be placed in cold water, and then brought gradually to the boiling point, and then allowed to simmer gently. The water should be very carefully skimmed; a tablespoonful of salt should be put into every half-gallon of water. Small fish should be put into *warm* water, and salmon and trout into boiling water. Pork, ham, and bacon should be boiled in cold water brought slowly to the simmering point. Poultry, &c., should be placed in warm water and then simmered.—*The Practical Confectioner.*

TOO GREAT A SACRIFICE.—Victim (to operator)—"Hi! Heyer! Look yer! You hole on!"

Operator—"Why, that's the tooth you said!"

Victim—"Yes; but you did n' say nothin' 'bout dat tooth been hooked on to my collar-bone. When I felt dat comin'—Whew! I can spar my tooth, but I'm not gwine gib up my collar-bone 'bout nuthin'."—*Harper's Bazar.*

## Buffalo Bugs.

*Editor Sanitary Volunteer:*

In your last issue is an article on Buffalo bugs. Last spring our village was full of them, and destruction followed in their wake, much valuable clothing, carpets, and other costly fabrics being destroyed or nearly so. Nothing seemed to vanquish them till *common salt* was used (ground table salt). My housekeeper applied it to carpets by turning up the edges and sprinkling the salt, say for an inch or two on the floor or lining of the carpet. By doing this our loss from the pests was reduced to a minimum, while our neighbors suffered greatly from them, although they used camphor, spt's turpentine, ammonia, and various other things to no purpose.

C. K. KELLEY.

## What He Wants in His.

I do not ask thee, Fate, to bake
For me so very large a cake;
Choose thou the size—but I entreat
That though but small it shall be sweet;
Let those who like it, have it—I
Feel no desire for sawdust pie.

I have no wail for all the years
I 've lived on crusts washed down with tears:
If I must drain the bitter cup
As heretofore,—why, fill it up!
But when my cake, if ever, comes,
Vouchsafe it to me full of plums.

—*E. S. Martin.*

## Wash the Carpet.

After the carpet has been beaten (especially if it be an ingrain) it should be hung upon a line, high enough to escape the ground, and thoroughly washed with water through a hose or force-pump. The water thus forced through and through the carpet carries every particle of dirt with it, and leaves it perfectly clean without the slightest injury. A carpet thus washed in the morning of a suitable day will be entirely dried by night, and as light and bright as when new. The matting used under an ingrain carpet should be covered with newspapers to prevent the dust, which so readily passes through such carpets, from becoming imbedded in it. When the carpet is taken up the newspapers may be gathered and destroyed, leaving the matting fresh and clean.

## The Spare Bed.

A friend recently gave us the following eulogy, clipped from we know not where, with the request that we help to extend its circulation. We comply, not without a strong feeling of the usefulness of such effort. It requires more than ridicule to convert the average house-keeper from her blind devotion to the traditions of her foremothers concerning the "spare room."

"Who first called them 'spare beds?' Why did n't he name them 'man-killers' instead? I never see a spare bed without wanting to tack the following card on the head-board:

NOTICE!
THIS BED WARRANTED
to produce
NEURALGIA, RHEUMATISM,
*Stiff Joints, Backache,*
DOCTOR'S BILLS AND DEATH!

"When I go out into the country to visit my relatives, the spare bed rises up before my imagination days before I start, and I shiver as I remember how cold and gravelike the sheets are. I put off the visit as long as possible, solely on account of that spare bed. I do n't like to tell them that I would rather sleep on a picket fence than to enter that spare room and creep into that spare bed, and so they know nothing of my sufferings.

"The spare bed is always as near a mile and a half from the rest of the beds as it can be located. It's either up-stairs at the head of the hall, or off the parlor. The parlor curtains have n't been raised for weeks; everything is as prim as an old maid's bonnet, and the bed is as square and true as if it had been made up to a carpenter's rule. No matter whether it be summer or winter, the bed is like ice, and it sinks down in a way to make one shiver. The sheets are slippery clean, the pillow-slips rustle like shrouds, and one dare not stretch his leg down for fear of kicking against a tombstone.

"Ugh! shake me down on the kitchen floor, let me sleep on the hay-mow, on a lounge, stand up in a corner, anywhere but in the spare bed! One sinks down until he is lost in the hollow, and foot by foot the prim bed-posts vanish from sight. He is worn out and sleepy, but he knows that the rest of the family are so far away that no one could hear him if he should shout for an hour, and this makes him nervous. He wonders if any one ever died in that room, and straightway he sees faces of dead persons, hears strange noises, and presently feels a chill galloping up and down his back.

"Did any one ever pass a comfortable night in a spare bed? No matter how many quilts and spreads covered him, he could not get warm, and if he accidentally fell asleep, it was to wake with a start under the impression that a dead man was pulling his nose. It will be days and weeks before he recovers from the impression, and yet he must suffer in silence because the spare bed was assigned him in token of esteem and affection."—*Golden Rule.*

### Truthfulness of Children.

It is in youth that the spirit of truthfulness may best be cultivated. Few realize how strong are the impressions made upon the heart of childhood by the examples which are given to it. Let no one imagine that to teach a child not to tell a lie is sufficient to make him really truthful. He must be imbued with the love of positive truth; and that can be infused only by those who are themselves inspired by it.—*Once a Week.*

### If We Could See.

Methinks if we could see each heart as Heaven views it,
So much of sorrow, care,
So many hurts are there,
Of joy so small a part,—
Poor, broken, human heart!
So pitiful 't would seem our hands would no more bruise it.

—*Edna Miller Sheldrake, in Good Housekeeping.*

The spring house-cleaning season is at hand. The first warm days should be utilized to put closets and storage rooms in order before the more general cleaning is begun. Look over all the bundle drawers and chests, and consign a good share of the woollen pieces, as well as scraps of carpet, to the rag-bag, for if stored away they become infested with moths and thus lead to the destruction of articles of value.

A few drops of kerosene in the water used to wash windows is highly recommended.

F. H. P., *Boston.* What is your opinion of the electric belt, described in the enclosed circular?

*Answer.* Like all other electric belts, as we have often stated in this column, it is a swindle pure and simple. It will produce no electricity, and even if it did it would have no remedial value whatever. Let all such appliances alone, and if necessary consult a competent physician.—*Popular Science News.*

## CONTAGIOUS AND INFECTIOUS DISEASES IN NEW HAMPSHIRE.

For the month of March diphtheria was reported to the state board of health from Manchester, Bridgewater, Nashua, Concord, Newport, Dover, Hooksett, East Kingston, New London, and Jaffrey. The largest number of cases for the month reported from any town or city was five in Nashua. No epidemic of the disease exists in the state.

Scarlet-fever was reported for the same period from Manchester, Nashua, Chichester, Pittsfield, Concord, Dover, New London, and Jaffrey. The largest number of cases was four in Pittsfield. No epidemic of the disease prevails.

Typhoid fever was reported from Manchester and Nashua.

The reports for the month were not as full or as complete as usual, doubtless owing to the fact that in many places the annual election made a change in boards of health and health officers.

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## NOTICE TO TOWN-CLERKS.

Town-clerks should keep on hand a supply of the following blanks relative to vital statistics, all of which will be supplied by the Registrar of Vital Statistics, Concord, upon application: Marriage Certificates, Burial Permits, Birth and Death Card Certificates for physicians' use.

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## PUBLICATIONS RECEIVED.

*Building*, An Architectural Weekly. Each number contains valuable illustrations in architectural designs. Price, 15 cts. a copy, or $6 per year.

*The Portsmouth Journal*, Portsmouth, N. H. Published weekly at $1.50 per year.

*The Doctor*, Devoted to the doctor and his relations to the community. Published at New York, monthly, at $1 per year.

*The Peterborough Transcript*, Peterborough, N. H., weekly ; $1.50 per year.

*The Granite State News*, Wolfeborough, N. H. Weekly, at $1.50 per year.

*State Board of Health Bulletin*, Nashville, Tenn. Monthly; 25 cts. per year.

*The Mountaineer*, weekly, published at Gorham, N. H. Full of spice, wit, and local news. One dollar a year.

*Monthly Bulletin*, Providence, R. I. ; 25 cts. per year. Published by State Board of Health.

SUPPLEMENT TO THE SANITARY VOLUNTEER

Vol. I. No. 4.

# TREATMENT OF THE DROWNED.*

ISSUED BY THE NEW HAMPSHIRE STATE BOARD OF HEALTH.

The numerous cases of accidental and suicidal deaths by drowning during every month in the year, and especially the accidental during the winter months occasioned by treacherous ice and unwisely daring individuals, seem to call for the promulgation of some methods, simple in practice and easily understood by every intelligent person, when carefully studied, by which many individuals might be saved from death every year.

There are several ways of accomplishing the resuscitation of the drowned, the same principle and object governing all, that is, the restoration of respiration, or breathing, and the normal warmth of the body. The methods herewith presented are quite as effectual as any.

## HOW TO TREAT THE DROWNED.

*Fig 1.*

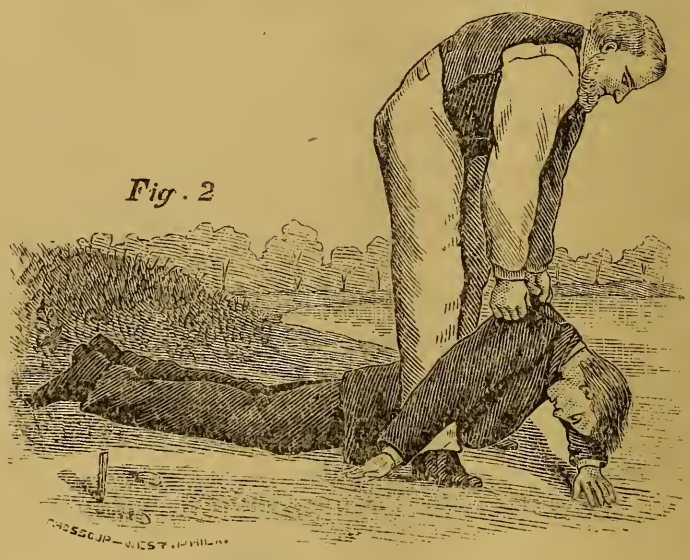
TWO THINGS TO BE DONE. — RESTORE BREATHING; RESTORE ANIMAL HEAT.

RULE 1. — REMOVE ALL OBSTRUCTIONS TO BREATHING. INSTANTLY LOOSEN or cut apart all neck or waist bands; turn the patient on

* The cuts which illustrate this circular, as well as a large part of the latter, were first presented by the Michigan State Board of Health several years ago. The Rhode Island State Board of Health has recently published the circular here given, and through the courtesy of that board the cuts are furnished.

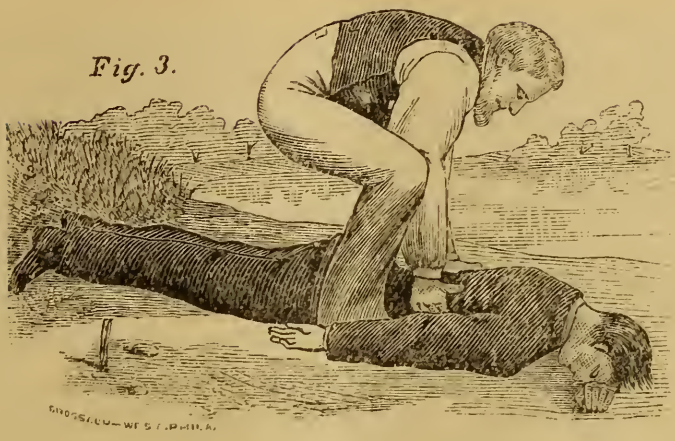
his face, with his head down hill; stand astride the hips with your face toward his head, and, locking your fingers together under his belly, raise the body as high as you can without lifting the forehead off the ground (Fig. 1), and give the body a smart jerk to remove mucus from the throat and water from the windpipe; hold the body suspended long enough to slowly count ONE, TWO, THREE, FOUR, FIVE, — repeating the jerk more gently two or three times.

*Fig. 2*



RULE 2. — PLACE THE PATIENT FACE DOWNWARD, and maintaining all the while your position astride the body, grasp the points of the shoulders by the clothing, or, if the body is naked, thrust your fingers into the armpits, clasping your thumbs over the points of the shoulders, and *raise the chest as high as you can* (Fig. 2) without lifting the head quite off the ground, and hold it long enough to *slowly* count ONE, TWO, THREE. Replace him on the ground with his forehead on his flexed arm, the neck straightened out, and the mouth and nose free. Place your elbows against your knees, and your hands upon the sides of his chest (Fig. 3) *over the lower ribs, and press downward and inward with increasing force* long enough to slowly count ONE, TWO. Then suddenly let go, grasp the shoulders as before and raise the chest (Fig. 2); then press upon the ribs, etc. (Fig. 3). These alternate movements should be repeated ten to fifteen times a minute for an hour at least, unless breathing is restored sooner. Use the same regularity as in natural breathing.

*Fig. 3.*



RULE. 3. — AFTER BREATHING HAS COMMENCED, RESTORE THE ANIMAL HEAT. Wrap him in warm blankets, apply bottles of hot water, hot bricks, or anything to restore heat. *Warm the head nearly as fast as the body, lest convulsions come on.* Rubbing the body with warm cloths or the hand, and slapping the fleshy parts may assist to restore warmth and the breathing also. If the patient can *surely* swallow, give hot coffee, tea, milk, or a little hot sling. Give spirits sparingly, lest they produce depression. Place the patient in a warm bed, and give him plenty of fresh air; keep him quiet.

## BEWARE!

AVOID DELAY! A MOMENT may turn the scale for life or death. Dry ground, shelter, warmth, stimulants, etc., at this moment are nothing; ARTIFICIAL BREATHING IS EVERYTHING, is the ONE REMEDY, — all others are secondary.

## BE PROMPT!

*Do not stop to remove wet clothing before efforts are made to restore breathing.* Precious time is wasted, and the patient may be fatally chilled by exposure of the naked body, even in summer. Give all your attention and effort to restore breathing by forcing air into, and out of, the lungs. If the breathing has just ceased, a smart slap on the face or a vigorous twist of the hair will sometimes start it again, and may be tried incidentally, as may, also, pressing the finger upon the root of the tongue.

Before natural breathing is fully restored, do not let the patient lie on his back unless some person holds the tongue forward. The tongue by falling back may close the windpipe and cause fatal choking.

If several persons are present, one may hold the head steady, keeping the neck nearly straight; others may remove wet clothing, replacing at once clothing which is dry and warm; they may also chafe the limbs, and thus promote the circulation.

*Prevent friends from crowding around the patient and excluding fresh air*; also from trying to give stimulants before the patient can swallow. The first causes suffocation; the second fatal choking.

DO NOT GIVE UP TOO SOON: You are working for life. Any time within two hours you may be on the very threshold of success without there being any sign of it.

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*In suffocation by smoke or any poisonous gas*, as also by hanging, proceed the same as for drowning, omitting effort to expel water etc., from the air passages.

*In suspended breathing from effects of chloroform, hydrate of chloral, etc.*, proceed by Rule 2, taking especial pains *to keep the head very low*, and preventing closure of the windpipe by the tongue falling back. Grasp the tongue between the forefinger and thumb, draw forward and hold.

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### PERSISTENT EFFORTS TO RESUSCITATE THE DROWNED.

Prof. R. C. Kedzie, ex-President of the Michigan State Board of Health, says, in relation to the foregoing circular, and in urgent persistence of efforts to resuscitate the drowned:

This bulletin has been widely distributed, and it has been republished by many papers in our State. It has been adopted by many other State Boards of Health and by city Boards of Health. It has secured a wide dissemination in our country. How much good has thereby been secured, it is impossible for me to state; but I have good reason to fear that *life is often sacrificed because energetic efforts at resuscitation are abandoned too soon.* I desire once more to urge upon the public the *duty of persistent efforts to resuscitate the drowned* and to repeat with emphasis one direction of the bulletin: "DO NOT GIVE UP TOO SOON; *you are working for life. Any time within*

*two hours you may be on the very threshold of success without there being any sign of it.*"

The efforts which are successful in restoring a human being to life certainly are not useless, and it is wicked to refuse or neglect to make such efforts, unless the absolute certainty of death is established. It is not enough to say that the person *appears* to be dead. Persons who gave no signs of life for a long time after being taken out of the water have yet been brought to life by appropriate efforts. I most earnestly protest against treating the drowned as dead merely because they appear lifeless. I am fully persuaded that many such persons die because no adequate efforts are made for their recovery. Persons may swoon, and for the time appear to be dead, but we do not assume that they are dead and leave them to their fate, but make energetic efforts to restore consciousness. No more should we assume the fact of death in the drowned, but should make like efforts to restore them to life.

### HOW NOT TO DROWN.

How to drown is an art that seems to be well understood and frequently practiced the world over. How not to drown is an art not so well understood, and requires some notice at the hands of this board. Drowning could be prevented if we could secure either of the following conditions: 1st, that everybody should know how to swim; 2d, that nobody should ever go into the water. But as we cannot secure either of these conditions in the present order of things, we turn our attention to some means of reducing these accidents to their minimum of danger.

Much good advice is often thrown away upon persons who find themselves suddenly thrown into the water: "Keep cool;" "Do not lose your presence of mind," etc. The conditions are very favorable to follow the first advice in a literal sense, for the water itself will assist one to get cool and to keep so indefinitely; but when a person is suddenly compelled to face death in an unexpected form, the advice to "preserve your presence of mind" is usually driven out of the mind by overwhelming terror, and the person too often becomes *absent-minded* in an awfully literal sense of the word.

The solids and liquids of the body are all heavier than water, but the living body, on account of the air in the lungs, stomach, and bowels, is slightly lighter than water; and so long as these cavities remain filled with air, the body will float in water, and a small part of the body can be kept above the water. While it is true that so long as the lungs, etc., are filled with air, the body is lighter than water, the difference in specific gravity is small, and only a small part of the body will float above water. What part will be above water depends upon the relative position of other parts of the body; if the legs are flexed and the arms thrown in front of the body, the center of gravity is in the anterior portion of the body, and the top of shoulders and back of the head only will be above water; the face being under the water, respiration will be impossible under such circumstances. But if the legs are straightened out and the arms thrown behind the body, the face will be brought above the water. In the attempt to float, therefore, *the legs should be straightened out, the head thrown back, and the arms held behind the body*:

the face will then float above the water so long as this position is maintained. If one part of the body is thrown out of the water, a corresponding amount of the body will be submerged; if the arms are held out of the water, the head will go under. I remember the case of a boy who thought he could greatly increase his power to swim by tying an inflated bladder to each foot, but when he entered the water he came near drowning, because his feet were kept out of the water but his head under water; and he soon became practically convinced that it was important that his head rather than his heels should be in the air.

If the mouth and nose are kept above water, respiration may go on without interruption, and life may be sustained indefinitely under such circumstances. This may be secured in still water by merely floating with the face upward, every other part of the body being kept constantly under water. But with very little exertion a person may do more than keep his nose above water, even if he is ignorant of the art of swimming. I have seen persons "tread water" by making the same movements with the legs as in walking up stairs, and thus keep the entire head out of water for a long time. If a person will add to this certain corresponding movements of the hands,— in fact, *make the same movements of both arms and legs that he would in climbing a vertical ladder*, but without lifting the arms out of the water and without closing his hands in the downward movement of the arm, he may keep his head out of the water even when the waves are running high, and may keep from drowning for hours. Whenever a person finds himself in the water and in danger of drowning, let him assume as speedily as possible a vertical position, and at once begin the same movements as in climbing a vertical ladder, — *let him climb for life*, — and he will be surprised to find with what slight exertion he can keep his head above water; let him be satisfied with this, for he may exhaust himself in vainly attempting more.

### PADDLING THE WATER AS A MEANS OF AVERTING DROWNING.

The following communication from Dr. MacCormac, of Belfast, is inserted as imparting valuable information on this important subject:

Already the season has been ushered in by a number of deaths, some of them occurring in our very midst, from drowning. The means of safety, or relative safety, which I have to point out are so very simple and, as I believe, so effective, that I am lost in wonder that no one has thought proper to insist upon them, as in the following remarks it is my intention to do. Swimming, as ordinarily practiced, is not the most sufficing means for escaping the dangers of the water. It needs some instruction to be able to swim, and practice to be able to swim well. No doubt it is desirable to swim and to swim well, but the great majority of persons of both sexes do not know how to swim at all. Yet unless people can swim, and swim well, — and even then they are not always successful, when the emergency comes, in preserving life,— swimming is, I am persuaded, not so effective a preservative as is con-

joint paddling and treading water. As a rule, subject to few exceptions, persons precipitated into the water do not swim without previously learning. But paddling with the hands and treading with the feet require no prior instruction, and in the great majority of cases would save life. In swimming, the mouth is on a level with the water in the intervals of the strokes; in paddling, the head is well elevated, the individual is able to look about, he can deliberate as to what is best to be done, and he is much less liable to take water into the larynx or glottis, a casualty which, I am persuaded, causes the destruction of many. Without prejudice to the art of swimming, I would have children exercise in household tanks from the tenderest age, in the act of paddling and treading water, so as to impart the confidence which unreasoning dread tends to lessen or take away when one is suddenly immersed in an unusual medium. The animal, the quadruped, begins to paddle at once when cast into the water, but as man does not habitually employ the anterior limbs as organs of locomotion, reason must tell him that he may, if he pleases, employ them as organs of locomotion in the water, just as readily as any four-footed animal. To be sure a man has not the habit of using his hands and arms for locomotion, as the brute has, but otherwise how much more available is the paddle-shaped hand than a hoof or a paw. Again, the man with little or no instruction, by throwing his head well back, can float and rest at pleasure, a thing of which the brute has no conception whatever.

Of course a little preliminary habitude is desirable, but without any preliminary habitude or instruction whatever, there is nothing to hinder man, woman, or child, were they unable, in common parlance, to swim a stroke, from beating water with the hands and feet, just as the lower animals do, and so keep themselves afloat for a protracted period, a period that in a multitude of instances would be found sufficient to invite rescue and preserve life. The action of the feet down will sustain the body; the action of the hands down will do so; *a fortiori*, the action of both will prove yet more effective. I have tried myself, one alone, or both together, nay, with a single hand only, in bygone years, I am sure, hundreds of times. There is no occasion for fuss or bustle. The body, taken as a whole, is actually lighter than water, bulk for bulk, and a very moderate amount of paddling with feet and hands will be found perfectly adequate to sustain and guide its movements. In fact, so long as the individual paddles, as I here direct, he cannot sink. A horse, or dog, or cow, or cat, or swine, when immersed in water, begins instantly to paddle, and that without any prior instruction or exercise whatever. Now a man, or woman, or child has only to do as the inferior animal does, and he, or she, or it will float necessarily and inevitably. The place being otherwise safe and boats at hand, boats' and ships' crews, a regiment of soldiers, schools and the like might jump into deep water and paddle themselves into security without risk or failure. In this, as in many other things, man is too often unaware of his own immense capacities.

Animals not habituated to the water will often take to it spontaneously, or if cast into it, sustain themselves for indefinite periods. Dogs often gain the shore when ships and their crews have been lost. Some years ago a dog

landed at the Cape of Good Hope with a letter in his mouth. The vessel to which he belonged had gone down with all hands; but if the men had paddled as the dog paddled, all their lives might have been preserved. Indeed, I know for certain that formerly it was the practice at the Cape for men to paddle out, it was termed "treading water," and bear communications to and from vessels in the offing, where no boat could live. It was, and I believe is still, the case at Madras, similarly. Natives at the island of Ioanna, in the Mozambique Channel, treading water, come out, bearing fruit on their heads to the vessels, miles distant. The young people in the islands of the Pacific breast the gigantic breakers out of mere sport. The Indians of the Upper Missouri traverse the impetuous current, invariably paddling and treading water.

Short instructions for paddling and treading water ought to be posted up in all schools, barracks, and bathing places; wherever, in short, people have to do with the sea or with masses of water. It should be shown how easy it is, with a little well-directed effort, to preserve life, and how the yearly and calamitous destruction which besets our shores might now, and happily for all time to come, be effectively stayed.

One precaution is necessary for a person who is paddling and treading water, to avoid strangling; when cold water is suddenly dashed into the face, an automatic or involuntary inspiratory effort or "catching the breath" is caused, and if the face at the instant is covered with water, strangulation from drawing water into the lungs is the result. When waves are dashing in his face, the person must guard himself against this spasmodic inspiration by holding his breath at such times, or he may even grasp his nose and close his mouth with one hand and thus prevent the possibility of strangulation, if such effort can be made without sinking the body too low in the water.

THE

# SANITARY VOLUNTEER

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## SANITARY AND OTHER NOTES.

A new asylum for the insane of Grafton county has just been completed, and a part of the rooms occupied. It is in connection with the county almshouse and under the same supervision.

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We have never seen any better definition of a crank than that given by Kate Field. She says,—"A crank is a being who, having looked upon one object so long as to see nothing else, believes that this object represents the universe, and that all persons holding different ideas should be legislated out of existence or otherwise suppressed."

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A naval hospital is to be constructed at Portsmouth. It will be located on Leary's Island, near where the Ives Cottage now stands. The building will be three stories high, of brick, and will cost $30,000. The location was selected by the surgeon-general of the navy, Dr. J. Mills Browne, and whose personal interest in the matter is probably not less on account of his having been a New Hampshire boy.

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The distinguished French chemist, Michel Eugene Chevreul, died in Paris the 9th of April, aged 102 years, 7 months, and 9 days. He was a man of great ability and perseverance, a hard worker, and a voluminous writer on scientific subjects. Many of his works were translated into English, and were authorities on the subjects upon which they treated.

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The Illinois State Board of Health has just issued a valuable report upon the "Water-Supplies of Illinois and the Pollution of Its Streams." The pamphlet contains over a hundred pages, and consists of a general report by Dr. John H. Rauch, secretary of the board, and two special reports, one by Prof. J. H. Long and the other by L. E. Cooley, C. E.

There is no society more worthy of public favor, or whose object is more humane, than that for the prevention of cruelty to animals. The good it accomplishes extends far beyond the relief of physical suffering among the dumb animals, although that alone is a sufficient reason for the maintenance of the society. Its influence and precepts exert an ameliorating effect upon human passions and impulses. The society should receive aid and encouragement from all good citizens.

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Many who have seen allusions made to the "Black Hole of Calcutta" know little or nothing of its history. In 1756 Surajah Dowlah, the Nawaub of Bengal, suddenly attacked the town of Calcutta, the metropolis of British India. After a two days siege he captured the town on the 18th of June, and with it 146 prisoners, mostly English. These at night were confined in a room 20 feet square, with two small windows. The sufferings of that night were most terrible, and in the morning only 23 were found alive. This room has since been known as the "Black Hole of Calcutta."

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The secret of Dr. S. Weir Mitchell's professional success is given by Dr. William Osler in the *Canada Lancet* thus: "A naturally keen intellect, a profound knowledge of human nature, particularly of the frailer portion of it, and living faith in the value of the *dietetic* and *hygienic measures in the treatment of the sick.*"

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The fortieth annual meeting of the American Medical Association will be held at Newport, R. I., June 25, 26, 27, and 28, 1889. In addition to the regular work of the meeting, there will be a large exhibit of medical and surgical instruments and appliances, invalid furniture and food, drugs, books, etc.; also sanitary appliances such as water-closets, basins, traps, ventilators, water-filters, and disinfectants. The meeting will be a welcomed opportunity for New England physicians, and the attendance will undoubtedly be large.

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Now is the time for local boards of health to make a careful sanitary inspection of our villages and cities. A house to house inspection should be made with as much care as if the object were an appraisal of the real estate. Neglected vaults, foul cesspools, bad drains, dirty back yards and alleys, in fact, all unsanitary features, should be removed or put in good condition before the summer months arrive. Such a cleaning up will do more to ward off cholera infantum and other summer infantile

diseases, not to mention its effect upon the adult population, than all the medicines in the universe.

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The queen of Sweden is undergoing treatment to restore her nerves to a natural condition that is probably quite novel for a queen, and doubtless might be a good therapeutical experiment for some who will never be queens. Her physicians require her to rise early, make her own bed, and dust and sweep the room; then a walk in the garden, breakfast, work among the flowers, and an active out-door existence all day. Her health has already been greatly benefited.

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The extent to which boards of selectmen are appointing health officers, instead of serving in that capacity themselves, is much greater than heretofore. It indicates that the service of competent health officers, even in our small towns, is considered necessary. This view has been brought about by observing how certain diseases are restricted by the efforts of an intelligent health officer, and that a careful supervision of the sanitary affairs of a town tends materially to increase its general prosperity.

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Every man or woman who does not keep the entire surface of the body clean, and who does not wear reasonably clean underclothing, is affected with some moral or mental discolorations. Neglect of person begets moral and mental degeneration, while cleanliness stimulates the nobler qualities of mind, better controls the passions, invigorates the body, and even shapes the destinies of life. Nature teaches cleanliness, and without it the human mind cannot mature the finer and more subtle attributes that have been planted within it.

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## PULMONARY CONSUMPTION, AND ONE OF ITS CAUSES.

Pulmonary consumption is more to be feared in every community than any other disease that affects mankind. It is the great placid ocean of mortality, compared to which the occasional epidemics that terrify the public mind are but turbulent inland lakes. Cholera, yellow-fever, and small-pox, diseases that paralyze with fright entire states, provinces, and countries, are exceedingly limited in their results in comparison with the steady, silent, and awful slaughter of consumption.

Last year Florida was panic-stricken from the havoc of yellow-fever; but during the same year consumption destroyed more than twice as many lives in the little state of New Hampshire, and not a tremor ran

through the body corporate. The average annual death-rate in this country, from cholera, yellow-fever, small-pox, typhoid fever, diphtheria, and scarlet-fever, all combined, does not reach the enormous total of deaths from consumption.

It is time that some determined and systematic effort be made to lessen this disease, which the most eminent pathologists and sanitarians now regard as preventable. Its communicability by contagion and infection has been proven, and its natural history is so well known that much may be done to limit its prevalence.

Among the general sources of infection there is one, at least, that should be removed, or, if not wholly removed, greatly lessened by legal action, and that is the sale of tuberculous food products. Such foods, chiefly in the form of tuberculous meat and milk, particularly the latter, are undoubtedly extensively sold to unsuspecting consumers; and that the results are not infrequently lamentable, no sanitarian doubts. Pulmonary consumption is a very prevalent disease among the cattle of this country; and since the general government has taken no measures to restrict the malady, it becomes the duty of the individual states to inaugurate some course that will reduce the danger to the public therefrom.

To illustrate, we will give one instance in this state very recently investigated by the board of cattle commissioners: Complaint was made to the board that some disease existed in a herd of thirty cows, in a certain town of the state; and under the assumption that the disease might be pleuro-pneumonia, the government, upon notification, sent a competent veterinary surgeon to inspect the herd. The inspector immediately diagnosed tuberculosis, had an infected cow killed, and the *post-mortem* examination revealed tubercles in nearly every organ of the body, including the udder. The inspector reported that about seventy-five per cent. of the herd was already infected. All, or nearly all, the cows were being milked, and the product being sold daily to a milk dealer for distribution among his customers. The dairyman, ignorant of the character of the disease, was bringing up a baby upon the milk of a single cow in which the disease had advanced nearly to its fatal termination.

This is only one case, but there are many others; and when, as a result, consumption appears in the human subject, the unfortunate victim and the friends accept the edict as wholly unavoidable and perhaps inexplicable. It is time that this great danger be taken in hand by every state, as it can be, with every probability of lessening in a marked degree the annual death-rate of this terribly insidious and fatal disease.

Under our present laws, neither the board of cattle commissioners nor the state board of health has any authority to deal with tuberculosis in cattle in a way necessary to restrict its spread among other herds, or

to prevent the appalling dangers to which it subjects the human family. The next legislature should enact a law that will require the board of cattle commissioners to stamp out the disease wherever found by destroying the animals infected, and for which the state should, in some measure at least, reimburse the farmer for his loss.

## OLEOMARGARINE MUST BE COLORED PINK.

When the legislature of New Hampshire passed the law requiring oleomargarine sold in the state to be colored pink, the act was generally regarded as a joke or as an absurdity. Secretary Bachelder, of the state board of agriculture, upon whom devolved the duty of enforcing the law, has positively demonstrated to several parties in Hillsborough county and to the public at large, that to sell oleo of any other color than pink means $50 and costs to the vendor. The validity of the law has just been tested by jury trial, and the case was defended chiefly upon the assumption that oleomargarine could not be colored pink: hence the law required an impossibility, and consequently was unconstitutional. After the defendants had submitted expert evidence to prove this alleged impossibility, the state brought in an expert, who, in the presence of the court, jury, and counsel, colored the product a beautiful pink. The jury returned a verdict of guilty against the defendants, but also found that no evidence had been submitted that showed oleomargarine to be an unhealthful article of food.

## THE WAY TO GET THEM.

It is estimated that 60,000 tickets will be sold west of Detroit for excursions to the White Mountains this season. Let us engage in a general clean-up before the tourists begin to arrive, as all tickets are good for from sixty to ninety days, and if our village is made attractive, as it can be made, many may decide to tarry with us.—*Gorham Mountaineer.*

Every town in the state should take this advice home to itself: summer visitors will not tarry in a town where the streets are dirty and the air laden with the odor of pig-pens and bad drains. Neither can any town that has an annual crop of typhoid fever or diphtheria expect to have many summer boarders. New Hampshire possesses unrivalled attractions for summer tourists, but they will always seek, other things being equal, healthful and invigorating localities. Clean up, and make the town healthful and attractive, if you want them. Gorham, as well as many other towns, has, in years past, experienced the truthfulness of these remarks. Great improvements have been made within a few

years in most towns desiring summer visitors, both among the mountains and at the coast, and a little progression in this direction each season will insure to New Hampshire an ever increasing reputation as a great summer resort state.

## HEALTH AND GOOD FOOD.

BY PROF. F. DE CHAUMONT, M. D., F. R. S., ETC.

In order to get a clear idea of the bearing of the question of food and its use in the body, we must be prepared to look upon man as a mechanical engine. As science advances we see this more clearly, and can observe how strictly all our actions and functions are regulated by physical laws. It is therefore by obedience to those laws that we shall obtain the best results, whilst if we oppose them we shall assuredly pay the penalty. The necessity for this obedience is plain to all in the rougher matters of physics, although it is not so generally admitted in the finer kinds that have to do with our bodily functions. Thus, everybody knows that if he goes up to a second or third story, and comes down again by jumping out of the window instead of using the stairs, he will assuredly come to most serious grief. But many persons do unwittingly as great injury to themselves in the long run by sins against physical laws in the management of their own bodies. An engineer knows that unless he stokes his engine-fire he will get no work out of his engine; but men often try to get work out of their bodies without stoking the fire properly,—that is, without supplying the necessary amount of food of proper quality. There is, however, this difference between our bodies and a mechanical engine, that whereas the latter will yield no work without stoking, the former may do so for a certain time. How is this? The obvious answer is, by consumption of the engine itself,—and in this lies the peculiarity of the animal or human engine: the supply of food does the double work of furnishing energy and repairing worn structure. The wonderful mechanism by which the body is put together permits of oiling, repairs, and coaling going on without interrupting the actual work. We require, then, food proper to fulfil all those functions—mineral matter to build up our skeleton, nitrogenous matter to repair the softer tissues, and carboniferous matter, which may be burned off by the oxygen we take in through the lungs, in order to supply energy for active work. Again: We find that we must regulate the food according to the work done, a larger quantity being necessary when the amount of work is increased.

If, on the other hand, we take more food than is actually required for our work, it can within certain limits be stored in the body and afterwards utilized; but if this is done habitually, it either leads to corpu-

lence or to disease. On the other hand, if the amount is too little for our work, we can still go on for a certain time doing our work at the expense of our body. First, the fat is used up, and this in some cases is not a bad result, but then after that the muscles and other tissues begin to suffer, and sooner or later the wasteful process must end in disease and death. Among the well-to-do classes the chief danger is from over-feeding, with the result of throwing upon the liver, heart, and other organs an amount of work they cannot accomplish; hence arise various diseases—indigestion, palpitation, liver-complaints, gout, &c. Among the poorer classes the danger is too often from under-feeding, and this is especially the case with the women and children. This is one of the causes of the excessive death-rate among children in those classes;—they are underfed as infants, in consequence of which they either perish, or live to grow up ill-formed and unhealthy, and afterwards to give birth to offspring who add inherited bad-health to the other evils that await them.

Sometimes people think little of a period of starvation (when it does not immediately affect themselves), and are under the impression that its results are soon recovered from; some people, again, voluntarily fast, either for the good of their health or as a religious rite, or perhaps through sheer negligence; some, again, do it by way of scientific experiment; whilst not a few do it voluntarily by way of punishment. Now, it is important to know that even a temporary starvation is a much more serious thing than most people imagine, and there seems good reason to believe that serious consequences may be traced to this cause, which have up to lately been only slightly suspected.

A most important paper has been written within the last year by Dr. D. D. Cunningham, of the Indian Medical Service, in which he gives an account of his researches into the effects of starvation on both plants and animals. He there shows that when they are deprived of nourishment for a certain time a series of changes go on in their structures which are not easily recovered from, and, if they are prolonged too far, are quite beyond all repair. The living membrane of the stomach and bowels, on the good condition of which all the nourishment of our body depends, undergoes a peculiar and fatal form of decay, so that even if food be supplied it cannot be digested or taken up into the body for use; it consequently becomes irritating instead of nourishing, and the cause of death in place of life.

In this way we can explain the terrible mortality in Indian famines, especially in the camps of relief, and the hopelessness of trying to remedy the mischief after it has reached such a pitch. The proper way is to prevent, if possible, the occurrence of such calamities by every measure

that lies in our power. But this has a serious application nearer home: if even the temporary loss of proper food is so dangerous an evil, how doubly responsible is the man who spends on his vicious indulgence the money that ought to feed his wife and children! It also affects in a very serious way the question of strikes, which have assumed so much importance of late years. I am not going to discuss the point here as to whether or not strikes are an advisable way of trying to raise the market value of labor, but I think it is a question that well deserves careful consideration, whether or not strikes, with their attendant misery and starvation, are not a most fatal weapon to use, even when they are apparently successful. That wages are lost in the struggle we know, but it ought also to be known that health may be, and doubtless often is, lost at the same time,—with this sad difference, that the loss of wages may be made up in aftertimes, but the loss of health, in too many cases, never can be so repaired.

But there is more than one kind of starvation. I have up to this time spoken of more or less complete deprivation of all food; but there is partial starvation by deprivation of one particular kind of food,—and this is not only common, but among the poorer classes of the people almost universal. One particular kind of this form of starvation has been more the subject of inquiry perhaps than any other, namely, that which depends upon the loss of vegetable food, more especially what are called green vegetables, and fruit. The consequence of such starvation is known as scurvy, a disease formerly very common in the northern or colder parts of Europe,—a disease which used to be the terror of our navies and our merchantmen, and which ever lies in wait for armies, sometimes even in their hour of victory. Happily, the cause of the disease is known, and its remedy, so that now, by the aid of lime-juice, we can send our ships to sea without fear; and scurvy is but little known now, except where ignorance, greed, or obstinacy on the part of commanders leads them to expose those under them to its terrible ravages.

I have been myself a witness to the havoc it created in the Crimean war; and we should have had a somewhat sad story to tell of our late occupation of Cyprus, had it not been for the abundance of grapes and other fruit in the island. But apart from those terrible and startling outbreaks of the disease, I am sure a good deal of it exists in a milder form among a large number of people in this country, on account of the neglect of vegetable food. It is a good thing that potatoes have become so general an article of diet, as they are excellent remedies for scurvy; but half the good they do is lost in our way of cooking them. By peeling them before cooking, the most valuable part of the juice is lost; they ought to be boiled in their skins, or steamed, or, if it is necessary to cut

away portions when they are not very good, they should be stewed or made into a soup, so that the liquor they are cooked in is consumed as well. But should potatoes fail, every effort should be made to procure green vegetables, such as cabbage and the like, and onions, as the best substitutes.

Another form of starvation is the want of nitrogenous or flesh-forming food. This food is best known in the form of meat, eggs, cheese, or milk; but it exists in large quantities also in flour, oatmeal, Indian meal, and especially in beans, pease, and lentils. These last—beans, pease, and lentils—are most nourishing, and ought to be much more used than they are: they contain much more of the flesh-forming food than the best meat, and would form a cheap and excellent substitute when meat is dear. Meat itself, too, would be much more usefully and economically prepared by being made into a soup or stew with vegetables, instead of the wasteful process of grilling or roasting.

Another form of starvation is the want of fat, and this is very frequent, on account of the dearness of most kinds of fat. Fat is a most essential thing, and no hard work can be well done without it. Children suffer especially from the want of it, and there is little doubt that deprivation of fat is one serious influence in the production of that terrible disease, consumption. Indeed, one eminent physician used to express the opinion that consumption in England was due to the high price of butter. Although not all the truth, it is still in a large measure true; and certainly, if children could be more generally fed on milk in their earliest years, and get a fair share of butter when able to eat it, they would be not only more healthy themselves, but would also be the parents of a healthy offspring. As it is, infants are too generally fed with bread or biscuit sop, corn-flour, or such like starchy foods, which the poor little stomach does not know what to do with, for digesting it is impossible. Pain is the result, the poor little thing cries and gets slapped by its mother for being fractious, whereas it is rather the mother that ought to suffer for feeding it wrongly. I do not wish, however, to throw too much blame upon her, seeing that she is too often so heavily weighted with want of knowledge and poverty.

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## THE RELATIONS OF WATER IN THE BODILY ECONOMY.

Dr. J. Harvey Dew read a short paper before the Medical Society of the County of New York, January 28, 1889, relating to the importance of water from a physiological standpoint. He would deal with water as an element necessary to the exercise of certain functions, and in the chemistry of animal life. Both laity and profession showed a sad neglect

of certain facts about water, the results of which inattention he saw every day.

The chief of these facts were,—

1. The body consisted mainly of water, the latter forming in health from two thirds to three quarters of its bulk.

2. Water constituted nearly the total volume of the circulating fluids of the body, the blood, lymph, and digestive secretions.

3. It was the vehicle for the processes of digestion, absorption, and transportation of food.

4. It formed a large part of the ultimate tissues, and must be present in every process of assimilation.

5. It served as a vehicle for the circulation of waste matters.

6. Three or four pints (or pounds) of it were needed daily.

7. It could be observed that all thin persons partook scantily of water, whereas all fleshy people drank freely of it.

8. All diseases involved a disturbance of the processes of digestion, absorption, secretion, and elimination.

8. A large proportion of the discomforts and troubles of the body arose from a poor performance of the functions depending upon water. It was proper that in health two pints of water should leave the body daily by the kidney, two by the skin, and one and a half by the lungs, or five and a half total. Water taken at meal-time was rapidly absorbed, or passed through the pylorus. Lack of water caused constipation, made the secretions tenacious, the circulation defective, and the skin dry, and directly caused dyspepsia. The habit of taking water only in the form of such beverages as tea, coffee, and beer was not a good substitute for the drinking of pure water.—*New York Medical Journal.*

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## A BREAD FOR DIABETICS.

A good bread for diabetics is made from the gluten from the starch factories, ground to a fine flour. In the ordinary method of manufacture the gluten is fermented out and lost, but lately efforts have been made to separate it out by machinery for sizing. The bread is made as follows:

One cup gluten flour; one cup best bran, previously scalded; one teaspoonful of baking powder; salt to taste; two eggs; one cup of milk or water.

To be mixed with a *spoon*. If the hands are used, the result will be even more disastrous than in the making of ordinary bread. This bread is healthful, palatable, nutritious, and contains but 4.57 per cent. of starch, equal to 5.08 per cent. of sugar. The analyses were made by Dr. Charles Harrington.

I presume that this bread is practically the same as that described by Waltering (*Allgem. med. Central Zeitung*, August 4, 1888), whose article by accident did not come to hand till recently.—JOHN A. JEFFRIES. *Boston Medical and Surgical Journal.*

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## THE POISON OF TYPHOID FEVER.

Dr. W. A. Shufeldt communicates to the *Medical Record* the following instances from his own observation:

In the small village of Fulford, Lower Canada, a French workman from a neighboring town, after a few days' illness, died of typhoid fever. Situated near the house, and on the lower level, was the spring from which the neighboring families obtained their water-supply. Three well marked cases of typhoid took place soon after in the families using the water, and five milder cases of fever,—all no doubt due to the contamination of the spring with the excretions from the house above it. No other case occurred in the village, and the epidemic died out soon after the closure of the spring. The soil and also the water were found to be very rich in organic matter.

In December, 1886, at St. Johns, Lower Canada, a case of fever occurred in an old barracks a short distance above the town. The water-supply for the town was taken from the river just below the barracks. A month later there were thirty well marked cases, and no less than one hundred others were suffering from fever of a continued type. The fever was most effectually stamped out by ordering families to boil both water and milk for drinking purposes. No cases occurred in the town of Iberville, which is situated on the opposite bank of the river, and enjoyed a different water-supply. Malarial fevers are unknown in this locality.

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## MUDDY BARNYARDS.

A writer in the *Mirror* says that among the agricultural abominations which farmers are allowed to support without falling into disgrace, or being called on by missionaries or agents of some kind, a muddy barnyard is the worst. If weeds grow in the field, garden, or along the road, some one will see and proclaim the fact. If there is a crack in the barn window, or a loose board on the house, it makes a good text for some strolling "guideboard," who happens along at the right time to see said board move in the wind or hear the hens cackle through said crack. If there is a brick loose on the chimney, or a dead limb on the plum-tree, some neighbor will make remarks. But the barnyard is the last resort where negligence, filth, and abuse are allowed to assemble and be put on

exhibition without a word of complaint. Probably some people do not know what a yard should be, and many more are not aware what it might be, and so every possible condition in which such places are found is supposed to be the best there can be under the circumstances, or perfectly proper, and the owner escapes criticism, while his stock and his hired men and boys wade in the mud and swear and suffer, and the women in the house suffer and scold. Of course the yard is not covered, and after a rain must be slightly muddy if there is anything to make mud of, as there usually is, but that is no reason why that spot, which is in continuous use by man and beast, should be given over to mud, and plans laid and executed to fill it with mud, and everything that passes through it be obliged to come out covered with mud.

The manure gains nothing by being soaked and trampled over; and if there is any substance that needs time to decay it should be put in a compost heap, unless there is enough of it to cover the yards above high water mark, and then it should be piled up as soon as it gets fine enough to hold water. Some men have an idea that a wet yard is the best place to make manure, and point with pride to a sea of filth from six to twelve inches deep, with an old rail laid from the gate pointing toward the pump, or a slab from the barn door to the shed, and both afloat and so slippery that no one can walk on them. To all this there must be an outlet, and such outlet is always a source of waste. When the water goes from this mass of filth, it either enriches a portion of the field too much, or goes into a brook at once. Then when such a yard is cleaned out, the men and teams handle 1,200 pounds of water in every ton of the compound, and the strength of what manure there is has gone downstream, or where it is not needed. Some men also allow their barn cellars to be flooded in the same way, so that sheep can hardly get about, and are worse off than they would be out in the snow every time they move away from the feed rack.

A yard can be made so it will not be covered with any but surface mud, and that for a short time, on any soil. The surface should be of hard gravel, smooth enough so it can be scraped off readily, and it should be kept comparatively clean. Let the accumulations be somewhere else. When men learn that mud is no better than manure in its usual state of moisture; that it is too expensive a way to water farms to cart mud on to them; that there is no gain, but much loss, by having such sinks of filth about the premises; and no excuse but negligence for all this discomfort to men and animals,—we shall see a change. Men are too willing to accept any old theory that gives an excuse for inaction in such a matter, but comfort and common-sense should decide.

A barn cellar properly arranged is one of the most valuable apart-

ments on the farm. With a dry bottom, with doors and windows open to the south, the pigs, lambs, and colts can be kept there and have exercise and enjoy the sunshine without regard to the thermometer. The pigs will care for the manure pile, so the air will be better than it is above in most barns where the ammonia is rising from the reeking stable floors. But when the cellar is converted into a cesspool, so that it is a severe punishment for man, beast, or fowl to cross it, the case is different, and something is wrong.

## WASH YOUR HANDS.

Surgeons understand how readily disease may be carried by the hands, and, under favorable circumstances, communicated to others, particularly certain specific diseases. In referring to the subject of unclean hands, the *Sanitary Era* says that cases of infection, that could be accounted for in no other way, have been explained by the fingers as a vehicle. In handling money, especially of paper, door knobs, banisters, car straps, and a hundred things that every one must frequently touch, there are chances innumerable of picking up germs of typhoid, scarlatina, diphtheria, small-pox, &c. Yet some persons actually put such things in their mouths, if not too large! Before eating, or touching that which is to be eaten, the hands should be immediately and scrupulously washed. We hear much about general cleanliness as "next to godliness." It may be added that here, in particular, it is also ahead of health and safety. The Jews made no mistake in that "except they washed they ate not." It was a sanitary ordinance as well as an ordinance of decency.

## SCARLET-FEVER.

Concerning scarlet-fever, Dr. G. G. Tyrrell, secretary of the State Board of Health of California, says, in the monthly circular of that board, that as the tendency to infection from this disease lessens with advancing years, the longer a child can be protected from it the greater the likelihood that it will escape it entirely. To attain this desirable end, it is absolutely necessary to isolate patients as soon as the disease is discovered; and this isolation must be maintained until the shedding of the epithelium or outer skin is completed. It is a well known fact that scarlet-fever patients are most dangerous to others when the skin is beginning to desquamate or peel off. During this time they should be frequently bathed, and their skin afterward anointed with fresh lard or other animal oil, which will hinder the dissemination of the branny scales. Children exposed to scarlet-fever should remain under observa-

tion ten or twelve days before being allowed to mingle with other children, and all attendants on the sick should change their garments, and disinfect their hands, face, and hair by washing in a disinfectant solution, before mixing with the public. It must not be forgotten that the type of the disease in one person is not certain to reproduce the same in another, as what is so mild as scarcely to confine to bed in one person may communicate a poison to another that will be so very malignant as to cause death in a few hours. It is therefore the part of prudence to confine the spread of the disease to within as small a radius as may be possible. To determine the most infective period of the disease, Dr. Whitlegge, of London, analyzed one thousand seven hundred cases, of which he had exact particulars, and found the infectiveness suddenly decreased at about the sixth day, increased again about the twelfth day, and reached its maximum on the sixteenth day.

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## OBSCURE DANGERS OF DRINKING-WATER.

The difficulty of detecting the typhoid germ is so great, owing to its form being like that of many other bacteria, and the number of typhoid germs is so small compared with the volume of water and with the multitude of other bacteria usually present, that the isolation and determination of the existence of this microbe in large bodies of water, by culture investigations and the microscope, have thus far proved practically impossible, on account of the many tests required, before a cautious investigator would dare to pronounce large volumes of water free from pathogenic microbes.

Some of the worst forms of disease may be wide-spread through a community by means of the water-supply, as was noticeably the case in Plymouth, Penn., and yet both chemical and biological analyses may fail to discern the particular matter which carries the deadly seeds of epidemic. One of the public water-supplies of Plymouth contained a much greater amount of organic matter than the other, but it was the water chemically purest which carried disease and death.

With most waters that are proposed for public supplies, there being as yet no practicable means of saying *definitely* whether they do or do not contain the germs of zymotic disease, all that can be determined with regard to them is, first, whether or not they are so situated with regard to sources of contamination that disease germs are likely to enter the waters; and, second, whether the waters exist under those conditions which are favorable to the multiplication of such pathogenic bacteria as may find their way into them. No waters are absolutely free from dan-

ger, but some are far more liable than others to be the carriers of disease.

A water-supply commonly free from the specific germs of disease, but having conditions favorable to their development, may, when exposed to contamination, be suddenly invaded by pathogenic bacteria, and an epidemic produced. When chemical analysis shows a water to contain an excessive quantity of putrescible nitrogenous matter, according to accepted chemical standards, such water is objectionable, on the ground that this matter may afford the pabulum essential to bacterial development. In the presence of (local) putrefaction, spores are often found in great numbers, even when the general body of the water does not appear impure by chemical tests. For this reason, the occurrence in a stream, or body of still water, of limited localities where quantities of organic matter accumulate and putrefy, may create hot-beds for the propagation of bacteria, whose myriads of spores may be diffused through great volumes of water of high *chemical* purity, possibly contaminating the whole mass. The general body of water may not contain sufficient food, or be of proper temperature itself to cause the development of the spores or seeds, but if there are pathogenic germs among them they will develop when drunk by susceptible persons, and become active agents of disease.—*Report by Jas. T. Gardiner.*

## TO MAKE MILK DIGESTIBLE.

Occasionally patients will complain that milk "always disagrees with them." In such cases mere prejudice may be active; but more often actual gastric disturbance does follow its use. One reason, doubtless, is that it is drank too quickly, and forms in the stomach one hard and unbroken mass of curd, which is with difficulty acted upon by the digestive fluids. Were it drank slowly, sipped as it were, it would then be distributed throughout the stomach, and eventually form in a spongy mass filled with cells, in and out of which the fluids could freely play and perform their functions. Another reason assigned for the indigestibility of milk, in certain cases, is its deficiency of cream. When the proportion of this element is lessened, the curd which forms is harder and more compact. Milk is often too poor, but never too rich, for purposes of enforced nutrition; and the fact is incontrovertible that it is the model food for digestibility. By adding cream to milk, the amount of fat is increased and the curd is softened. Its digestion can be still further facilitated by the disintegration of its coagula, accomplished by crumbling into it bread, crackers, etc., or by the addition of a small amount of cooked meal or flour.—*Boston Journal of Health.*

## THE FUTURE OF HYGIENE.

"The time is fast approaching," says the *New York Medical Journal*, "when hygienic and preventive medicine must supersede in great degree the methods of the old healing art. Less credit given to drugs results in greater reliance on measures that render them unnecessary. And thus a knowledge of limitation becomes an increase of power. It is the physician alone who can lift to a higher level public conceptions of life, death, and disease. In order to fulfil his high vocation of supreme educator—controlling the relations of human life to the outer world—an exhaustive knowledge of all the surroundings of man is essential, a survey of the whole of nature. Without it, the best intentioned must inevitably fail. To place medicine upon the plane of biology is to give it the only foundation that accords with the spirit of the times. Any effort in this direction deserves recognition and encouragement. When man rises, by means of modern medical instruction, to the momentous cognition that he has power over his own destiny and that of his offspring, life for the masses will begin to be truly worth living."

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## THE RELATION BETWEEN CROUP AND DIPHTHERIA.

In discussing the limitation of diphtheria, the *Boston Medical and Surgical Journal* says that one question which has been sometimes looked upon as a point merely for abstract discussion acquires great practical importance, namely, the relation between croup and diphtheria. Many a case diagnosticated as simple croup, and not considered as contagious, has been followed by similar cases among neighboring children; and we feel that an important contribution to the limitation of diphtheria is within the power of the medical profession, if they will treat their cases of croup as having infectious potentialities.

Another difficulty in the way of the prevention of diphtheria lies in our ignorance of many of the conditions which cause its spread. Direct contagion is the one important factor that we can and should deal with; but the many outbreaks in which the first case cannot be traced to an antecedent one, and the lack of any uniformity as to the conditions of drainage, water-supply, etc., in the most infected communities, often overturn all our theories as to the extension of the disease.

Dr. Samuel H. Durgin, chairman of the Board of Health of Boston, incidentally referred to this subject in discussing a paper on diphtheria, read before the Suffolk District Medical Society, in the following words:

"I was very glad to hear the suggestion that a great deal more care be given to early diagnosis, followed immediately by the reporting of a case. This is of service not only in enabling the board of health to visit

the premises early, and try to remove the child to the hospital, but also of service in preventing some of the children of that household from attending school, and thus spreading the disease. I have no doubt that a great deal of the spread of this disease is from the mild cases which are allowed to attend school. I have known quite a number of cases where a child, sitting next another with a sore throat which subsequently proved to be diphtheria, took the disease. It seems to me that the secret of the vast spread of the disease over so large a portion of this city is found in the mild cases, which it is almost impossible for physicians to diagnosticate early, and sometimes not at all. I also hope that there will be a tendency on the part of physicians to regard cases of croup as at least possible diphtheria. It has been shown that very many cases of so called *croup* have been followed by well recognized cases of diphtheria in the same family, evidently coming from the first case, regarded as croup."

## TO DETECT ARSENIC IN WALL PAPER.

The manufacturers of this dangerous agent have recently renewed their activity, on finding that the public had ceased to be on the alert, from being led to believe that poisonous colors were no longer used in the manufacture of wall papers. As a simple test for arsenic in wall paper, an ordinary gas jet is turned down until the flame is wholly blue. A narrow strip of the paper suspected is cut, and the edge brought in contact with the outer edge of the gas flame, when a gray coloration, due to arsenic, will be seen in the flame if arsenic be present. If the paper is burned a little, the fumes that are given off will have a strong garlic-like odor, due to the vapor of arsenious acid. At the charred end the carbon will most probably be colored a bronze red. This is copper reduced by the carbon. The copper is next slightly oxidized by the air, and on placing the charred end a second time not too far into the flame, the flame will now be colored green by copper, for copper arseniate is commonly used in preparing wall papers.—*British Medical Journal.*

## IMPRUDENT.

We were lately told by a gentleman, who had been on a visit to Massachusetts, of a sad case, which illustrates how thoughtlessly parents will sometimes invite their children to their death. Two children lay dead of diphtheria in Malden, and the parents sent to North Abington for their third and only remaining child, a promising young man, a clerk in a drug-store, to come home to the funeral. He went home, took the disease, and died.

We admire the courageous impulse with which a young man hurls himself into the sea to save a drowning brother or sister, and have no words of disapproval for the parent who permits him to do so, especially if he can swim. But to call a child to his death, as in the instance above,—we have no words of condemnation for the stricken parents, but there ought to be a strong and healthy public sentiment that would hold back a parent or a child from so rash an act. Diphtheria is a disease which is liable in any case to be terrible in its malignity, against which we have no protection, only to keep away from it. The young man, if he were newly vaccinated, might have faced small-pox with immunity; but the young person, especially the child, who comes within the infected area of diphtheria, takes his life in his hands.—*Sanitary Inspector.*

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## THE PROFITS OF A SANITARY INVESTMENT.

Less than ten years ago Memphis, Tenn., seemed to be a doomed city. The population had shrunk 20 per cent. in a few years, and real estate had decreased in value, all because the city was scourged by disease. The panic-stricken people, looking upon the place as doomed, had surrendered the municipal charter. But about 1880 a complete drainage system was constructed, and with its completion health and prosperity commenced to return. To-day the Memphis *Appeal* estimates that in the last twelve months $5,000,000 have been put into public works there by foreign and local investors, a bridge across the Mississippi is under construction, new banks, club buildings, a union depot, etc., are being built, the cotton receipts have about doubled on those of nine years ago, and the population has increased in nearly the same proportion,—all because it was finally realized that, to prosper, a city must, first of all, use those precautions against epidemics and diseases which sanitary science has placed at its disposal, and render its surroundings as healthful and inviting as they can be made. This done, ordinary business energy and push will do the rest, as the present prosperity of Memphis proves. There, drainage saved a dying city.—*North-Western Builder.*

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He who has grown weary of remaining at home, often goes forth and suddenly returns, inasmuch as he discovers he is nothing better for being abroad.—*Lucretius.*

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HIS OWN DIAGNOSIS. Mother—"And do you really feel so very bad, Bobby?" Bobby—"Yes, ma. I ain't quite sick enough to need any medicine, but I'm a little bit too sick to go to school."

# DOMESTIC VARIETIES.

## Care of the Hair.

To keep the hair clean and silky, it must be brushed often and regularly; no amount of combing will produce a like effect. Provide yourself with a brush of the finest bristles, which must be long enough to penetrate the hair to the scalp. Never use a wire brush, and a comb should be used only in arranging the hair. Abundant hair is an ornament if properly cared for, but not otherwise. There is no other dust-catcher equal to it, and particles of dandruff continually sifting from it are anything but cleanly.

First wash the hair in luke-warm water with a few drops of ammonia, or a fine quality of soap may be used. Shampoo the head thoroughly, using a nail-brush, kept for the purpose, to cleanse the scalp. Rinse well in clear water, or, if the hair is harsh and dry by nature, use a little glycerine in the rinse water, and if very moist, a little glycerine and borax may be used. Rub the head and hair as dry as possible with a coarse towel, then allow it to hang over the shoulders, and brush with a soft brush till thoroughly dry.

At bedtime the hair should be unfastened and brushed for five or ten minutes, then gathered into a loose braid, which will give free access to the air. To allow the hair to remain tightly twisted and fastened with hairpins during the night not only causes it to break and become uneven, but also to have an unpleasant odor from want of ventilation.

Hair that is brushed regularly night and morning, if only for a few minutes at a time, will require less frequent washing, and meanwhile will be clean and glossy. Too much washing renders the hair harsh and dry. It is very beneficial to clip the ends of the hair once a month, after it has been brushed smoothly down the back. After this all the forked ends that remain should be clipped, as while in this condition there will be no growth, and one may as well perform this office for herself as to employ the professional hair-dresser.

The hair-brush should be of the best unbleached bristles, not too closely set together, and of good length. It should be kept free from the gathered lint and dandruff by gently tapping the bristles against some flat surface and wiping with a cloth after each time using. Occasionally it may be washed in luke-warm water with a few drops of ammonia. Merely stand the bristles in the water, not allowing the back to be wet. Shake free from water, and stand in an airy place, not in the sun, to dry.

### Composite.

The hash lay on a plate:
"I am a thinking entity," it said,
"I 'm lying here in state;
I am alive, although my parts are dead!"
It felt a sudden thrill:
Then rose a clamor shrill,—
"Oh, Whole, you 're rash;
We parts are still ourselves, although in hash."
Murmured the Mutton,—"Ah, how yellow were
The cowslips in the fields, how passing fair
Was all about when I, a merry lamb,
Began the life which led to where I am!"
Said the Potato,—"Warm was the brown earth
Of the brown hillside where I had my birth;
What joy of growth within my bosom welled,
How curled my tendrils, how my tubers swelled!"
And mused the Beef,—"How green are Texas plains;
With what a novel grandeur Nature reigns;
What vast expanses; how our pulses stirred
As swept we onward in a mighty herd;
I see the flying steeds, the sudden dash!"
"Meo-ow!"
"Bow-wow!"
Said the rest of the hash.

—*Chicago Tribune.*

The hygroscopic quality of table salt, and its tendency to pack together in cruets and containers, may be entirely overcome by thoroughly drying the salt and intimately mingling with it a small percentage of dry corn starch or arrowroot. From eight to ten per cent. is amply sufficient for the most humid atmosphere (as on the sea coast), while a much less percentage of the starch is sufficient for inland points.—*St. L. Med. and Surg. Jour.*

A mechanical scarecrow has been invented. This new invention represents a man of "sportsmanlike" appearance, standing with gun in hand, ready to fire at the first intruder. The arm that is holding the gun is made to move by clockwork, which is enclosed in a strong iron box at its feet, and at a proper elevation it fires a shot louder than an ordinary gun. After the report, the arm lowers. The mechanism can be regulated at the owner's pleasure by a regulator like a clock, and only requires to be wound up once a day.—*Popular Science News.*

## Custards.

Custards are a time-honored dish for tea, and may be baked, boiled, or steamed. But in making them it is well to remember that the hot milk should always be poured over the eggs, and not the eggs into it, as the heat will often make them curdle, as it cooks them before they are well mingled with the milk. Salt, too, will make egg and milk curdle, and in boiled custards it should be added directly after taking *from* the fire. A pinch of soda as big as a pea should always be put into the custard for a pie, and for the many delicious desserts of which custard forms the basis. It prevents the troublesome wheying which spoils so many promising dishes. Remember that a custard will thicken a little after leaving the fire, so allow for that in your cooking. Never try to make a boiled custard except in a double-boiler, or in an improvised one of a pail set in a pan of boiling water. Allow two eggs for each pint of milk, though in time of famine an ingenious housekeeper can substitute a dessertspoonful of corn starch, wet smooth in milk, for one egg.

—*Good Housekeeping.*

## How Women Rest.

How differently men and women indulge themselves in what is called a resting spell. "I guess I'll sit down and mend these stockings and rest awhile," says the wife; but her husband throws himself upon the easy lounge, or sits back in his arm-chair, with hands at rest and feet placed horizontally upon another chair. The result is that his whole body gains full benefit of the half hour he allows himself from work, and the wife only receives that indirect help which comes from change of occupation. A physician would tell her that taking even ten minutes' rest in a horizontal position, as a change from standing or sitting at work, would prove more beneficial to her than any of her makeshifts at resting. Busy women have a habit of keeping on their feet just as long as they can, in spite of backaches and warning pains. As they grow older they see the folly of permitting such drafts upon their strength, and learn to take things easier. let what will happen. They say, "I used to think I must do thus and so, but I've grown wiser and learned to slight things." The first years of housekeeping are truly the hardest, for untried and unfamiliar cares are almost daily thrust upon the mother and homemaker.—*New York Graphic.*

"O health! thou sun of life, without whose beams
The fairest scenes of nature seemed involved
In darkness, shine upon my dreary path
Once more."

### Stocking Supporters.

The stockings of women and girls should be kept in place by "stocking supporters," which may be purchased at any store dealing in underclothing for women and girls. They consist of straps, to one end of which the stockings button, while the other end is fastened to the waist. Garters should never be worn. They always seriously impede the circulation, since just above the knee, where they are worn, the large blood-vessels of the lower limbs lie near the surface, and are inevitably compressed, by their use, against the thigh-bone. They often cause varicose veins. They generally produce cold feet and headache.

When a muscle acts, it expands in thickness while contracting in length. Any ligature that prevents this expansion renders its action impossible. Arrested action signifies arrested development; if thorough and protracted, wasting away. For instance, when a broken arm has been done up in a splint for several weeks, when the wrappings are taken off the arm is generally found to have shrunk in size, the muscles having wasted somewhat, on account partly of the compression, partly of disuse. A finger-ring causes a wasting away, or atrophy, as it is called, of the parts beneath it. The fact that placing an elastic band around soft tissues will cause them to be absorbed, has been made use of in the removal of tumors in certain parts of the body. This shows the tendency of wearing garters. The effects of the habit are not so serious as in the instances cited, but it is injurious, not the least among the results of which is a likelihood of interference with the proper growth of the lower limbs.—*Boston Journal of Health.*

AN INDIAN BOY'S COMPOSITION: STORY OF GOOD BIRD AND BAD CAT.—One day, bright day, and a little bird happy and stood on a log, and sang all day long. That bird does not know anything about cat. She thinks nobody is near to her. But behind the near log one sly old cat is watching. She wants to eat for supper, and she thinks about stealing all the time. The old cat came very slow, and by-and-by she go after the little bird, but she does not see him, and sang aloud again. She sang just like this, "I am always try do what is right; when I ever die I go to heaven," that bird said these all words, and I shall not forget the bird what it said, and these all words it said, and after two or three minutes go died; that cat jumped and catch and kill—eat all up except left little things from bird, wings, legs, or skin, and that bird is glad to die because she is a very good bird. The little bird has last time sang, and very happy was the little bird after that. I think the old cat have good dinner and happy just same as the bird was at first time.—[This composition was written by an Indian boy at the Hampton School, and is published just as he wrote it. The optimism of it is delicious.]

## How He Smiled.

The druggist who cut prices
And did a rushing trade,
Thought he saw prosperity
And had his fortune made.
And he
smiled
like
this:

But when he balanced up his books
And found just where he stood,
He quickly changed his methods—
None too soon for his own good.
But he
smiled
like
this:

—*Indiana Pharmacist.*

## What may be Eaten with the Fingers.

There are a number of things that the most fashionable and well-bred people now eat at the dinner table with their fingers. They are:

Olives, to which a fork should never be applied.

Asparagus, whether hot or cold, when served whole, as it should be.

Lettuce, which should be dipped in the dressing, or in a little salt.

Celery, which may properly be placed on the tablecloth beside the plate.

Strawberries when served with the stems on, as they usually are in the most elegant houses.

Bread, toast, and all tarts and small cakes.

Fruit of all kinds, except melons and preserves, which are eaten with a spoon.

Cheese which is almost invariably eaten with the fingers by the most particular people.

Even the leg or other small piece of a bird is taken in the fingers at fashionable dinners, and at most of the luncheons ladies pick small pieces of chicken without using a fork.—*Chicago Herald.*

## CONTAGIOUS AND INFECTIOUS DISEASES IN NEW HAMPSHIRE.

For the month of April diphtheria was reported to the State Board of Health, from Portsmouth, Keene, Canaan, Exeter, Laconia, Fremont, Nashua, Claremont, and Manchester. Four cases, with three deaths, in Portsmouth. No epidemic of the disease in the state.

Scarlet-fever was reported from Rochester, Rye, Nashua, Claremont, Wakefield, Pittsfield, Manchester, and Portsmouth, there being six cases in the latter city. No epidemic of the disease reported.

Typhoid fever was reported from Rye, Amherst, Concord, Nashua, Wakefield, Pittsburg, and Rochester.

Measles were reported from Wakefield, and as epidemic in Walpole.

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## PUBLICATIONS RECEIVED.

*The Sanitary Visitor.* Rutland, Vt.; monthly. Published by State Board of Health.

*Science.* A weekly paper of the arts and sciences. New York. Single copies, 10 cents; yearly, in advance, $3.50.

*Monthly Sanitary Record.* Columbus, Ohio; 25 cts. per year. Published by State Board of Health.

*Carroll County Pioneer.* A weekly newspaper devoted to the interests of Carroll county. One dollar a year.

*Plumbers' Journal.* New York, semi-monthly. One dollar per year.

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## NOTICE TO TOWN-CLERKS.

Town-clerks should keep on hand a supply of the following blanks relative to vital statistics, all of which will be supplied by the Registrar of Vital Statistics, Concord, upon application: Marriage Certificates, Burial Permits, Birth and Death Card Certificates for physicians' use.

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A SUCCESS. A friend of ours went to Hot Springs for change and rest. The waiters got his change and the hotels the rest.—*Weekly Medical Review.*

A NEW VINTAGE. Old soaker (at the club, dreamily)—"I say, waiter, that 's the best wine I 've had for ages. Bring another bottle." Waiter—"You 've had no wine, sir. What you drank was the Worcestershire sauce."—*To-Day.*

THE

# SANITARY VOLUNTEER

VOL. 1. JUNE, 1889. NO. 6.

## SANITARY AND OTHER NOTES.

The proprietors of the leading hotels at Jefferson propose to construct a sewer for the use of their several houses. The contemplated improvement will probably be carried out at once. It is this kind of work that builds up our summer resort interests. We shall give a full report of improvement when completed.

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John J. Berry, M. D., of Portsmouth, has recently been appointed a member of the New Hampshire State Board of Health, *vice* Wm. H. Bragdon, M. D., resigned on account of ill-health. Dr. Berry is a gentleman of ability, a fluent writer, has given considerable attention to sanitary questions, and his appointment does credit to the state, the board, and the medical profession.

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Northern owners of real estate in Florida express much gratification over the creation of a state board of health for that state. The board is well equipped, with almost unlimited powers and an ample appropriation. Had such a board been created two years ago, Jacksonville would not have suffered as she did last year from yellow-fever. Florida has long been in need of an able and vigilant state board of health.

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Wolfeborough is making a move for a public water-supply. It is expected that a charter will be obtained at the coming session of the legislature. We are glad to see such a move inaugurated. No town in the state is more in need in this direction. The enterprise will undoubtedly prove a good financial investment, as well as one of marked benefit to the health interests of the town.

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The New Hampshire Medical Society holds its ninety-eighth anniversary at Concord, June 17 and 18. The society has changed its order

of exercises so as to give more time for the meeting. A reception will be given the members on the evening of the 17th, and the anniversary banquet will be on the afternoon of the 18th. A large attendance is expected. The programme and other information may be obtained from the secretary, Dr. G. P. Conn, Concord, N. H.

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Physicians should bear in mind the law which requires them to report all cases of diphtheria, scarlet-fever, and typhoid fever to the local board of health (or if none, to the selectmen). Since it is through the local board or the selectmen that the state board of health receives its monthly reports on these diseases, a compliance with the provisions of the law is important, even though the local board may not, unfortunately in some towns, possess sufficient activity or executive ability to encourage the physician to render a report. It is the physician's duty to report every case of the diseases named, whatever may be the course pursued by the local health authorities.

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Good results have already been observed in this state from the law requiring certain diseases to be reported at once to the town health authorities. In some instances there is no doubt but that communities have been saved from epidemics of scarlet-fever, while it is probable that diphtheria and typhoid fever have been greatly restricted.

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A postal card, asking for information regarding the return of an overlooked death certificate, has been received by the registrar of vital statistics from a town-clerk who neglected to give the name of the *town*, and the post-office stamp upon the face of the card is illegible: hence the blanks cannot be sent. Through such an oversight persons are sometimes charged with neglect or indifference because a prompt reply is not received.

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## A REMARKABLE VOTE.

Franklin is one of the most thrifty, progressive, growing towns in the state, yet, at its last annual meeting, it was voted that the "Selectmen act as health officers *without pay*." We have no idea that this vote represents the people of Franklin, for they are too intelligent and have too much pride in the prosperity of the town to stultify themselves in this way. We presume that after the principal business of the meeting had been transacted, and the voters were tired and perhaps somewhat indifferent to the routine matters that come up at all town-meetings,

some pseudo-economist, fertile in pound-foolish and penny-wise methods, made the motion that resulted in the vote above stated. This is the only explanation that comes to our mind for such an improper, injudicious, and senseless vote. The town might with as much propriety require all its officers to serve without compensation. Franklin, like all towns of rapid growth, has annually required the services of health officers, and, in some cases, the aid of the state board of health has been sought. Indeed, this is true of the present year, and the officers find perplexing complaints and nuisances which they are instructed to act upon "without pay!" The selectmen of Franklin, however, will perform the function of health officers, and the town will pay them for their services. The vote has no force except to show what a foolish motion can be passed in town-meeting.

## ICE-WATER.

There is a great deal of sentiment and many opinions regarding the use of ice-water that vanish when the light of reason and experience is turned upon them. The fact is, that ice-water, drank slowly and in moderate quantities, constitutes a healthful and invigorating drink. There is no doubt that ice is a great sanitary agent, and every family ought to be provided with it during the warmer months of the year. It is true that the inordinate use of ice-water, or its use under some special conditions and circumstances, is attended with great danger; so is the improper use of any other drink or food. The assumption that iced water is dangerous, and that iced tea, or iced coffee, or iced lemonade is a harmless substitute, is simply a delusion. As the source of danger feared by some is the degree of cold, we fail to see clearly how flavor modifies the effect of temperature. There are some individuals, undoubtedly, who cannot drink ice-water without injury, and who ought never to use it, but to a great majority of persons it is refreshing and healthful. Its use, temperate and discreet, is in no way to be condemned, which cannot be said of some of its substitutes.

## THE DANGEROUS NURSING-BOTTLE.

During the summer months the nursing-bottle becomes one of the greatest dangers that confront the infant population, especially among the laboring classes. The neglect to cleanse the bottle thoroughly, nipple and tube, if it has one, gives an opportunity for the formation of products (ptomaines) that produce cholera infantum and other conditions dangerous to infantile life. The mother who fails to cleanse the nursing-bottle and fixtures at least three or four times during the twenty-four hours

should not be surprised if her infant falls a prey to some intestinal trouble that may prove fatal.

The same remarks are applicable to any vessel in which milk is constantly kept. The rapidity with which it decomposes during the heated term, and the dangerous character of the products of such decomposition, necessitate great care to insure healthful milk for the infant at all times.

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## PREVENTIVE MEASURES IN PULMONARY CONSUMPTION.

Since the discovery of the bacillus of tuberculosis by Koch, this disease has been regarded by many pathologists and sanitarians as belonging to the preventable class. Its communicability is well established, and since no specific remedy for it has been discovered, preventive measures must be relied upon to diminish the great death rate from this disease. In alluding to this subject, Dr. Tyrrell, secretary of the California State Board of Health, quotes Dr. Cornet as "of the opinion that the patient is by indiscriminate expectoration even more dangerous to himself than to his surroundings; that he can poison himself, and that the inhalation of a few bacilli more, and consequent starting of fresh foci in his lungs, may determine the speedy end of his life." It can be seen how very important it is that the expectoration of all consumptives should be speedily disinfected, especially in hotels, pleasure resorts, and sanitariums which invalids seek for health's sake. Until this is methodically and effectually done, we can hope for no advance in the limitation of a disease which is preventable, and which, Dr. Cornet says, kills one seventh of the entire population.

The *Boston Journal of Health*, referring to the contagiousness of consumption, says that Mr. MacMullen, in the *Australasian Medical Gazette*, calls attention to the danger to which healthy travellers are subjected by consumptives. To illustrate this danger, he narrates a case in which a healthy man, on a voyage from London to Australia, was placed in the same state-room with a consumptive in search of health. Now that consumption is regarded as a communicable disease, there is no longer excuse for this commingling of well and sick in such confined quarters as a ship's state-room. Steps should be taken by the owners of steamships and other vessels to separate those who are so unfortunate as to have consumption from those that are healthy, to the degree, at least, that the unsuspecting traveller would not be required to breathe the air impoverished and possibly infected by an invalid suffering from pulmonary consumption.

## AMERICAN PUBLIC HEALTH ASSOCIATION.

The preliminary circular relating to the next meeting of this Association has just been issued. The meeting will be held at Brooklyn, N. Y., October 22–25, 1889.

The Executive Committee have selected the following topics for consideration at said meeting:

I. THE CAUSES AND PREVENTION OF INFANT MORTALITY.

II. RAILWAY SANITATION.
- (a) Heating and ventilation of railway passenger coaches.
- (b) Water-supply, water-closets, etc.
- (c) Carrying passengers infected with communicable diseases.

III. STEAMSHIP SANITATION.

IV. METHODS OF SCIENTIFIC COOKING.

V. YELLOW FEVER.
- (a) The unprotected avenues through which yellow-fever is liable to be brought into the United States.
- (b) The sanitary requirements necessary to render a town or city proof against an epidemic of yellow-fever.
- (c) The course to be taken by local health authorities upon the outbreak of yellow-fever.

VI. THE PREVENTION AND RESTRICTION OF TUBERCULOSIS IN MAN.

VII. METHODS OF PREVENTION OF DIPHTHERIA, WITH RESULTS OF SUCH METHODS.

VIII. HOW FAR SHOULD HEALTH AUTHORITIES BE PERMITTED TO APPLY KNOWN PREVENTIVE MEASURES FOR THE CONTROL OF DIPHTHERIA.

IX. COMPULSORY VACCINATION.

X. SANITATION OF ASYLUMS, PRISONS, JAILS, AND OTHER ELEEMOSYNARY INSTITUTIONS.

Papers upon miscellaneous sanitary subjects not included in the above list will be received by the Executive Committee subject to the requirements of the By-Laws. Preference will be given, however, to papers upon the subjects selected by the Committee in making up the daily programme of the meeting.

It is confidently expected that the Brooklyn meeting will be the largest and most important ever held by the Association. The Local Committee of Arrangements have already organized, and have the preliminary local work well under way. No efforts will be spared to make the meeting a grand success, and every arrangement necessary to the comfort of those attending will be made in ample season.

The growth and work of this Association constitute a monument to

American hygiene. It was organized in 1872, and has grown to be the largest association of its kind in the world, and embraces in territorial area the United States, the Dominion of Canada, and the Provinces. It has published fourteen large volumes on health subjects, one volume on disinfectants, which is the most complete work of its kind in the English language, over one hundred and twenty thousand copies of the Lomb Prize Essays, besides numerous reprints. The influence of this great work upon the public health interests of the country can scarcely be estimated.

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## DEFECTIVE PLUMBING CAUSES ILLNESS.

The three Misses Ely opened a boarding-school for girls in the large old-fashioned house 142 Columbia Heights, in the autumn of 1887. Beforehand they had had James Armstrong, a plumber, do some work in a bath-room in the second story. About the same time Mr. Stevens, the owner of the house, employed another plumber to put in sewer-pipes. Soon after the school opened, on October 6, these pipes burst three several times, flooding the cellar and basement. While Mr. Stevens's plumber was making repairs, Armstrong, under orders from the board of health, put a vent-pipe in the closet which he had previously put in.

Soon after the opening of the school, a pupil who occupied one of the rooms near the bath-room became ill. Six days later a second pupil became ill of typhoid fever. Four days after that a third pupil was stricken down with the same disease, and six days after the third victim a fourth pupil showed the same symptoms. The result were that the school was broken up on November 16, and the Misses Ely sustained a loss. The four girls who became sick occupied the rooms near the Armstrong closet. None of the other forty persons in the building were taken sick. The four patients came respectively from Michigan, Wisconsin, Ohio, and Pennsylvania, so they could hardly have contracted their diseases from a common source before their arrival at the school.

Armstrong's closet was taken out. The condition it was in was described in court by the four men who handled it at the trial of the Misses Ely's suit against Armstrong for $15,000 damages, which began before Justice Pratt in Brooklyn ten days ago.

The closet was produced in court, and the men who had taken it out testified that the top of the lead pipe under it did not reach the top of the double flower, which was set in putty that had become loose. The consequence was that moisture escaped to such an extent that the floor and cement used for deadening in it were saturated. They said, also, that the waste-pipe was cracked, and that the vent-pipe which the board

of health had ordered did not connect with an old lower trap, and, in addition, was still stopped up with a cork put in temporarily to prevent the escape of gas, so that it was no vent-pipe at all. The cork was exhibited. In addition, the vent-pipe, in being put in place, had broken a piece out of the porcelain basin. The breakage was mended with plaster of Paris, which, alternately expanding and shrinking as it became wet and then dried, did not exclude gas. Messrs. Birdseye, Cloyd & Bayliss, in behalf of the Misses Ely, produced Drs. Colton, Raymond, and Gilfillan as experts to show that sewer-gas contained typhoid fever germs, which were conveyed under the floors and through the openings in walls to adjoining rooms.

Lawyer George V. Brower, for the defence, asserted that Armstrong's work was well done, and that the illness in the Misses Ely's school was due to the defective plumbing in the basement, for which Mr. Stevens's plumber was responsible, if it was due to defective plumbing at all. He produced Drs. Johnson, Althus, and Matthewson as experts. They did not believe disease germs floated promiscuously in the atmosphere. Dr. Hamilton exhibited a photograph of water containing bacilli enlarged 160,000 times. He said a bacillus bore the same relation in size to a cheese mite that a cheese mite does to a man. While he did not take much stock in the theory that bacilli were conveyed in sewer-gas, he acknowledged, on cross-examination, that he had cut off the city water and waste-pipes from the bedrooms of his own house, and was using the old-fashioned basin and ewer.

So many witnesses of all sorts were examined, that the trial, which was illustrated with diagrams and plans, lasted six and one half working days, and was not given to the jury until Friday. Justice Pratt, in letting it go to the jury, reserved the right to set aside the verdict if the jury found for the plaintiffs, and to give judgment for the defendant. He also instructed the jury to pay no attention to the plaintiffs' demand for replumbing—$800. After a comparatively short deliberation, the jury brought in a verdict for the Misses Ely of $620. Motions for a judgment by the court for the plaintiffs, and to set aside the verdict rendered, will be heard next week.

Lawyer Bayliss said yesterday that the verdict had established the principle that when a plumber is negligent in his work, and illness comes through his negligence, he is responsible for damages. He added that the case had apparently broken new ground, as he could find none like it in the books.—*New York Sun, April 14.*

## INFECTIOUS DISEASES AND HOW TO ESCAPE THEM.[1]

BY C. A. LINDSLEY, M. D.

*Gentlemen of the Young Men's Christian Association:* In analyzing the motives which induced me to accept an invitation to address you this evening, I think it was a feeling of duty to do some work of this kind, rather than a sense of any special fitness for it. The opportunity awakened in me something like a missionary spirit, such as I conceive must actuate those noble men and women who devote their lives and labors to carry the gospel of good tidings to the heathen in far distant lands. So it appeared to me that, whereas the people of New Haven do not have any regular preaching upon the bible of Hygiene and the commandments of the sanitary code, it was and is a very proper field for missionary work. As I have been ordained a minister of Public Health,[2] my right to preach the gospel of Hygeia cannot be questioned, albeit the matter and manner of my preaching may be as much criticised as the sermons of most other poor preachers. Of that I have no more right to complain than other ministers, but will rather welcome such criticism as an indication that my discourse will not be so speedily forgotten as the sermons you hear on Sundays.

I have no idea of the nature of the sentiments aroused in the heathen mind towards the missionaries who go among them, although there are well authenticated statements that large, fat, sleek missionaries are more acceptable than little lean ones. But that is a practical rather than a sentimental aspect of the subject, and yet it leads to the inference that the sentiments are not those of the highest personal respect. Therefore, I can believe that a missionary and the people whom he would benefit are not at first in the most cordial sympathy with each other. The missionary is regarded with suspicion. He announces himself an innovator. He proclaims new and strange doctrines. He is at war with old and time-honored practices. He would be a revolutionist. He would call himself a reformer. He assails the habits and customs prevalent, and assumes to know better ways of doing and living.

If the missionary is injudicious, if he is hasty and incautious, and demands too much, if he is too aggressive, and exhibits a disposition to *drive* instead of one to *lead*, he will provoke hostility, and the heathen will seek to remove him, even if they have to eat him to do it. If, on the other hand, he is patient, prudent, persuasive, makes haste slowly, he can eventually win confidence and respect, and satisfy the people of his

[1] Extract from a lecture delivered before the Y. M. C. A., January, 1888, at New Haven, Conn.

[2] Health officer of New Haven for fourteen years, and Secretary of the Connecticut State Board of Health for several years.

good intentions and his sincere interest in their welfare. At this stage of his missionary work he has gained friends and adherents. He has gathered about him a band of believers, who have accepted his teachings and adopted his precepts, and are converts to his faith. They become his disciples, and co-workers with him in the propagation of his doctrines. And thus, perhaps after many failures and repulses, the doctrine of Public Hygiene may gain lodgement, as Christianity gains a foothold and a staying place among a heathen people.

The minds of men seem to be guided by quite similar laws in all their grades of development, in all circumstances and conditions of life. The sanitary missionary, in his efforts to introduce more salutary ways of living among old-established communities, finds precisely the same kind of difficulties to contend with which the Christian missionary does among the heathen. He must make haste very slowly. The degree of intelligence which a people may manifest in regard to their ordinary affairs, or their familiarity with the usual topics which interest cultured society, give but little assurance that the novel teaching of the sanitary missionary will be received with any respect, or that his propositions will be considered fairly upon their merits.

Scepticism in regard to his teaching, opposition to his advice, and antagonism actively exerted, may confidently be expected from almost all who would be at any pecuniary cost, even if only temporarily, by an adoption of his recommendations. The pioneer sanitarian in any old community, with fixed habits and long established practices, will have to meet unreasoning obstinacy, deep rooted prejudices, and frequent disappointments and repulses, and the most he can hope for is that his efforts will in some way prepare the ground for easier cultivation by his more fortunate successors.

I have chosen as a topic for the basis of my remarks this evening, "Infectious Diseases and How to Escape Them;" because I believe, that in addressing a body of intelligent young men, active, thoughtful, earnest, and zealous to make their life-work useful to themselves and to their fellow-men, it is the time to deal with questions of practical import, rather than with theories and speculations. This is an eminently practical subject. It appeals directly to your personal safety. Infectious diseases claim their victims very largely from the young,—far more than from those in middle life, or the aged. You yourselves are exposed to the causes which develop them; and as you go on in life and have families of your own, your children even more than you will be liable to them. It is a subject, therefore, which it well becomes you to have whatever practical information you can make use of in self-defence, and in defence of those who are as precious to you as your own lives are.

Do not suppose, however, that I can give you any medicinal preparation which possesses the mystical power of warding off infection and protecting from danger those who use it.

The question is often asked us, How do you doctors avoid diseases? And it has been asked me sometimes with so much earnestness as to imply in the questioner the belief that the doctors do possess some hidden means which they use successfully for their own protection, but do not reveal to other people. But let me assure you the doctors possess no means of safety that you do not. They know of nothing to ward off deadly diseases that they will not gladly tell you of. Nothing will put a regular doctor in disgrace with his professional brethren so quickly as to announce that he possesses a secret remedy for the prevention or the alleviation of human suffering. That is one of the strong marks of distinction between the Regular Physician and the Quack.

Before we proceed further, let us try to get some definite ideas of some of the words we shall use. The first word I wish we may have a mutual understanding about is "disease." In the popular mind, it often presents itself as a thing, an entity, something with form and substance, an enemy which we can attack and dislodge. But let me tell you now that disease is not a thing which can be taken up and put down, as you would take your jack-knife from your pocket. *Disease is a process.* Disease is a changed action in the tissues or in the organs of the body. It is a departure from the normal, healthy processes; it is an abnormal, unhealthy process.

Our habits of speech sometimes give erroneous impressions. If you meet your friend on the way to your business in the morning, and he seems so desponding and sad that you ask him the cause, and he tells you his child "has the scarlet-fever," after expressing your regrets and sympathy, your first question is, Where did she catch *it?* IT. By "it" you mean the disease,—as if it were something tangible that could be pursued and caught. We always exert ourselves to catch something: we do it purposely, with intent. We run to catch a train; you overtake or catch your friend if he is before you; you can catch a ball in the air. And so when you ask about your friend's child, who has the scarlet-fever, how she caught "it," the impression is involuntary that the disease is the "it." But the disease is not a tangible it, that you can catch and hold on to as you can catch a pretty girl or a runaway horse. There is, however, an "it" related to every infectious and contagious disease, which does the catching.

That is the "IT," which we are most concerned to know about. That "*it*" is the infection. Every infectious disease has its own special infection. Every infectious disease is caused by the introduction into the

human body of the special kind of infection which produces the disease. Each disease, I say, has its own infection. If we can avoid the infection, we stand in no danger of the disease.

Much progress has been made within a few years in the knowledge of these infections—what they are, how they exist, and what will destroy them.

At the present time almost every scientist who has studied the subject enough to be entitled to hold an opinion about it, believes that these infections are living bodies; that they belong to the kingdom of nature which is endowed with life; that they are living germs which have a natural life-history, which reproduce themselves, grow old, and die like other vegetables or animals. These learned men give these little objects very long and learned names. They call them micro-organisms, microbes, bacteria, micrococci, etc. They are only visible by the aid of the microscope, as most of the names given them indicate.

If then, the infection which causes each disease of this dangerous class is a living germ, it has a career, that is, it has a beginning, a period of existence, and a death, and it follows as an inevitable corollary to that fact, that for every living thing there must be an environment suited to the needs of its life, and also other environments in which it cannot live.

If it were possible to know the conditions favorable to the propagation and perpetuation of all the different disease-germs, it might be also possible to know how to avoid these conditions. So, on the other hand, if we could know how to destroy the life of disease-germs, or how to surround ourselves with an environment in which disease-germs cannot exist, it would then be possibly practicable to protect and defend ourselves wholly from infectious diseases. So that the occurrence of a disease which can only be caused by a disease-germ would always be of the nature of an accident, or of carelessness, or even the consequence of a criminal act,—because every infectious disease is caused by the invasion and reproduction within the human body of a disease-germ.

If is scarcely to be expected that complete immunity from such diseases will ever be realized. But the progress which has been made within the period of the present generation in studying the conditions under which these germs do live and thrive, and the converse, the conditions under which they perish, excites very hopeful prospects for the future. Indeed, the application of the knowledge already acquired to the details of practical life have given the most encouraging results in demonstrating the practicability of excluding such diseases from communities, and of limiting their spread when they do get a foothold.

In the present state of knowledge the guiding principles of safety con-

sist in avoiding or destroying the disease-germs. I have said, disease-germs are reproductive.

To illustrate: A child becomes ill with scarlet-fever from a brief contact with a few scarlet-fever germs, emanating from the body of another scarlet-fever patient. The seed-germs thus sown in the child's body lie awhile, several days, a week or more, dormant apparently, the period of incubation, the hatching period; then suddenly the child is ill, the whole system is disordered, and scarlet-fever is established and runs its course. But the few germs which that child received found a fruitful soil, and they have sprung up and yielded such an abundant harvest, that, wherever that child may be, that atmosphere about it and whatever touches it is fully charged with the same germs, all capable of communicating the same disease to other susceptible members of the human family.

These germs produce only scarlet-fever, never any other disease. It is no more possible to acquire small-pox from a scarlet-fever patient, than it is for a farmer to raise a crop of peaches from a field in which he had planted only potatoes.

But there is another consideration: the vitality of these scarlet-fever germs is very enduring. The maximum period of existence is not known. It is known, however, that, if the clothing of a scarlet-fever patient be taken off and packed in a trunk, that clothing will retain the infection in an active form for weeks, months, and possibly for years, so that persons in its presence when it is unpacked will take the disease.

Conversely, it is known that if the clothing of such a patient is exposed to the open air, the disease-germ speedily perishes, and loses its infective power.

Exactly the same facts are true of small-pox, and some of the other contagious diseases.

Some years ago I was summoned to see a sick baby but a few weeks old. The briefest examination showed me that it was a case of small-pox, in the fully developed stage of the irruption.

Where did it acquire the disease? It had never in its brief life been outside the house. The mother, a quite feeble woman, had not been out-doors since the babe was born. The father, the only other member of the family, worked in the neighborhood, and had not been away from home to any other place in a long time. They had no visitors, except those who lived quite near them. There was no small-pox in New Haven, and had been none in many months.

Persistent inquiry finally elicited these facts. The family had, some months before, removed to New Haven from another city. A former husband of the mother had died of small-pox about two years before. Some trunks and boxes, possessions of her former house-keeping, had

been brought with her to New Haven, and had not been opened since the death of her former husband, until after the birth of her baby. The origin of the disease in this case was no longer a mystery.

There is no limit to the recorded illustrations of the fact that disease-germs, packed away from the free access of air in confined places, maintain their vitality for an indefinite time. The story of the grains of wheat found in the wrappings of an Egyptian mummy, where they had reposed some thousands of years, sprouting vigorously when planted in the soil, is generally discredited by botanists; it is, however, conceded by them that the vitality of seeds of some forms of vegetable life does not perish for many years. The emanations from the graves of the dead, after hundreds of years of burial, have communicated to the living fatal maladies of which many have died.

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Now we have another class of infectious diseases of which typhoid fever is a type. You may call upon and cheer up your typhoid fever friend, if he is not too sick, or as soon as he may be able to see you, without risk of taking the fever, or carrying it to others. That you could not do with your small-pox and scarlet-fever friends.

Disgusting as it may appear to you, and seemingly impossible, almost the only way one can take typhoid fever is by swallowing some of the excrement of a typhoid fever patient. It has been very satisfactorily shown that the infection from a typhoid fever case is only found in the discharges from the bowels. It is not floating in the air, given off from the skin, and exhaled in the breath, as are the infections of small-pox and scarlet-fever. It is only in the stools, and to take the disease one must swallow some portion of them.

The involuntary thought, of each one of you, is, If that is so, I am safe from typhoid fever, for I shall never swallow the minutest portion of another person's stools. Now do not be quite so sure of that. You may even now be in the practice of swallowing a dilution of other persons' stools every day. Some of you, I know, drink water daily from a well in the back yard of your house. In the same yard is a privy vault, which receives the daily excrement of all the family. Your neighbors on each side of you have exactly the same accommodations, each a well and a privy vault. By a city ordinance (a very bad one) every privy vault must be six feet deep. Your well is only twelve or fifteen feet deep. That is, the ground water, which is the well-water when a well is dug down to it, is only twelve or fifteen feet below the surface. Now the fluid part of the contents of your privy vault soak directly through the bottom of the privy until it reaches and mingles with the ground water. Then bear in mind that the ground water is in motion, it has a current,

and although the flow is slow, it nevertheless does run in some direction. As this subterraneous current flows along, charged as it is with urine and diluted fæces, leaching from the many privies of a populous locality, it passes through that stratum of soil which your well has penetrated, and your family draw up from the well, for your daily drinking and cooking, a solution of the contents of your own or your neighbors' privies. If under such conditions the excreta of a typhoid fever patient are thrown into a privy without disinfection, the fever germs in due time reach the ground water and are carried to the wells of the vicinity.

Even large reservoirs of water intended for the general supply of a town are not safe from the danger of such infection without constant vigilance. This fact was illustrated in Plymouth, Pa., quite recently, when in a town of 8,000 people 1,250 were stricken with the fever, and 130 died. The infection of this water was from a single privy located on the banks of a brook running into the reservoir.

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Protection from infectious diseases in a community cannot be secured by dependence upon individual voluntary action. There must be authority to compel obedience to necessary sanitary regulations. Individuals acting without order or skilled direction are in most cases a mob. The systematic control of infectious diseases depends upon a few cardinal principles, the chief of which are,—first, Immediate NOTIFICATION to the health authorities of the occurrence of such disease. (It should be as prompt as a fire-alarm.) Next, the ISOLATION if necessary of the sick, and providing for their proper care without exposing others, and finally the DISINFECTION of whatever may proceed from such sick persons that might carry the disease to others. In addition to these means the strictest attention to cleanliness should everywhere be required, because of the well proven fact that the spread of infectious diseases is greatly endangered by the prevalence of filth. Hippocrates said, two thousand years ago, that a pure air, a pure water, and a pure soil were the essential requisites for health.

The time will come when a death from typhoid fever will be considered as proper a subject for a coroner's investigation as a death by any other poison. It only requires the rigid application of laws already recognized to reduce to a very inconsiderable amount the sickness and deaths from most of the infectious diseases. By proper means they are preventable, and always some one is responsible for their occurrence.

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If one half of the care and vigilance exerted in making railroad travelling safe were also used in making communities safe from zymotic diseases, the mortality from those diseases would be reduced to less than one quarter its present amount.

Railroad corporations are compelled to pay damages in good money to their unfortunate passengers for injuries received on their roads; and for loss of life, a few thousand dollars to surviving relatives. There is nothing on earth so almighty to control and direct the attention and efforts of men as the almighty dollar.

Whenever our state legislatures get so far enlightened as to make communities responsible for the suffering of their fellow-citizens by infectious diseases, and compel payment to every sufferer, from the public treasury, then public hygiene will receive the attention which its importance demands. Individuals cannot alone control the spread or prevent the invasion of contagious diseases. It can only be done by the united and concerted action of communities, acting under authority. Hence communities are responsible morally for the presence and prevalence of contagious diseases, and ought to be held so pecuniarily.

No act of the legislature could so promptly and so surely put Connecticut in the fore front of all the states of the Union for its superior sanitary condition as the enactment of a law like the following:

Be it enacted, etc.—

Every legal resident in every town in Connecticut, who shall, while residing in the town, have either of the following diseases, to wit, Yellow-Fever, Cholera, Small-pox, Typhus Fever, Scarlet-Fever, or Typhoid Fever, shall be entitled to receive from the treasury of the town, $3 for each day he is confined to his house by such sickness, or by the order of the board of health of the town, for the public safety. And in case of the death of such person from such diseases, $25 shall be paid from the town treasury to defray the expenses of the funeral.

And every person so afflicted shall be subject to such regulations and restrictions during his sickness as the board of health of the town shall determine to be necessary for the safety of other persons.

There is better reason for paying such victims of disease than there is for paying damages to people who slip on icy sidewalks and hurt themselves. The town treasuries would suffer for a time. But very soon town boards of health would become an important department of town government. The members of such boards would be more considerately appointed than at present. Sanitary engineering, in the way of sewers, aqueducts, drainage schemes, etc., would be going on all over the state to save the expense of paying for so much sickness, and the state of Connecticut would rival the railroad companies in the care and vigilance given to sanitary matters, and with corresponding good results.

The final consequence would be, and in a very few years, a great reduction of sickness, and in confirmation of the old adage, that Public Health is Public Wealth, we should enjoy a heightened degree of prosperity, and greater happiness than ever before.

## UNCOOKED MILK.—AN ENGLISH AUTHORITY DECLARES IT DANGEROUS.

The *Lancet* says that the question of the habitual use of uncooked milk is one which demands serious attention. Again and again have milk epidemics of typhoid fever, scarlet-fever, and diphtheria shown conclusively how severely the incidence of the disease in question has been felt upon those using uncooked milk, as opposed to those taking milk only after it has been boiled or otherwise cooked. At one time it was thought that the matter involved only the question of the cleanliness of the dairy, and the freedom of those engaged in its management from communicable disease; and the mere fact of milk coming from country dairies has been held to be a sufficient guaranty of its wholesomeness. As a matter of fact, our experience goes to show that the danger is at its greatest, according as dairies are situated in the more remote and rural localities; for it is precisely in scattered rural areas that first cases of ill-defined sore-throat and other affections in the families of those having to do with cows and milk are most likely to pass unnoticed. But recent experience has shown that disease in the human subject, whether recognized or concealed, is not the only—perhaps not the greatest—danger that has to be contended with in connection with our milk services. It has now been shown that the cow herself may suffer from a disease which at present is rarely, if ever, regarded as of any importance by dairymen, and which may give to the milk, at the actual moment of entering the pail, the power of producing scarlet-fever in those who consume it in its raw state. Just as the excellent arrangements which have been made for the medical supervision of dairies must at times fail to detect certain cases of disease in the human subject, so must any veterinary or other inspection of cows fail in certain cases to prevent scarlatina-producing milk from being despatched from the dairy. Our contemporary, therefore, urges the importance of using milk only after it has been boiled or otherwise cooked. If, it adds, the milk be boiled immediately after its delivery, and be then set aside in a cool place for some six hours, the taste which is sometimes objected to will be found to be almost entirely removed; and not only so, but milk so treated keeps good and wholesome for a longer period than does unboiled milk.

—*American Analyst.*

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## CLAIRVOYANT "PHYSICIANS."

The opinion of the supreme court of Wisconsin, by Lyon, J., holds that a clairvoyant physician is liable for failure to exercise the ordinary skill and knowledge of a physician in good standing, practising in the

vicinity, and not merely the ordinary skill and knowledge of clairvoyants.

If he holds himself out as a medical expert, and accepts employment as a healer of diseases, but relies for diagnosis and remedies upon some occult influence exerted upon him, or some mental intuition received by him when in an abnormal condition, he takes the risk of the quality of accuracy of such influence or intuition. There are so many persons now who assume to act as physicians, and take the lives of people in their hands, that this decision, holding them to a strict liability, may, perhaps, be timely.—*Legal News.*

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Sir Edwin Chadwick, in an address on sanitary science, says,—"Physicians are beginning to declare that a large amount of the crime for which punishment is inflicted is due to insanity, and that insanity is due to low physical condition which sanitation by early physical training would remove. There are experiences to show that this is the fact. Dr. Ashe and others conversant with the lunatic asylum declare that, as a class, lunatics are of low physical condition, and that that low condition is reducible by sanitation and early physical training. Of thirty thousand blind persons, the late Dr. Rolph declared that two thirds might have been saved by early sanitation."

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## HEART FAILURE.

It would be an excellent idea if physicians of the present day would invent some other reason for about all the deaths which occur nowadays than the cheap fraud, heart failure. It is difficult for any one conversant with the organs of the human body to understand how any human being can die without heart failure, while the causes of the failure of the heart at death may be very numerous. This might not be of serious moment were it not for the fact that hundreds of people are being nearly frightened to death by the constant use of the cause for sudden deaths, and many people who are sick and necessarily, have some heart symptoms, are kept in constant terror by reading or hearing in other ways of death after death by heart failure. It would be well if physicians who are too indolent or too ignorant to search out the disease lying back of the heart failure to consider how much harm they are doing the community, and if they cannot correct the habit, newspapers and the public should avoid giving currency to this unfounded and dangerous phrase. There are probably no more deaths from heart failure in these times than heretofore, but a new cause for death has been coined, and the nervous and timid are being severely injured by it.—*Manchester Union.*

## RESULTS OF VACCINATION.

The opponents of vaccination in England, says *Science*, have of late been more active than ever; and, as a result of their activity, a royal commissioner has been appointed, whose duty it shall be to make a full investigation of the whole subject, and submit a report thereon. Friends of vaccination should welcome such an inquiry, as the method stands upon such a firm foundation of facts as to be able to stand the most searching examination. If it has not accomplished all that is claimed for it, the failure is due to insufficient or inefficient performance of the operation, and the sooner such abuse of it is made public the better. It is a rather remarkable coincidence that just at this time events should transpire at Sheffield, England, which show the value of vaccination. Small-pox has recently been very prevalent in that city. In a population of about 320,000 there have been 6,088 cases of the disease, of which number 590 proved fatal. Dr. Barry, who has made a report to the local government board, finds that the attack-rate of the vaccinated children under ten was 5 in a thousand; of the unvaccinated of the same age, 101 in a thousand. The death-rates for the same classes were respectively .09 and 44. In every hundred thousand of those twice vaccinated there were 8 deaths; once vaccinated, 100 deaths; and unvaccinated, 5,100 deaths.

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Paper milk cans and pans are very slow conductors of heat, says the *Sanitary Era*, and when milk or other fermentable matters are placed in them cold, they will be kept sweet much longer than in mineral or metallic vessels. Paper vessels of all kinds are now made under a new patent so solid that they can be thoroughly scalded and scoured, and water can even be boiled in them, it is said, without damaging them.

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The efficiency of state health departments, says the *Sanitary News*, depends largely on organization. The most competent boards that can be appointed will fail to the extent that their organization is incomplete. The organization of local boards is among the most important work to be performed, and all state boards should be empowered to appoint health officers in every locality where the local boards have not organized. Where dependence is placed in the organization of local boards by local physicians and officials, state boards are often left with no one from whom to receive reports in the most important parts of the state. It has no alternative while it is not empowered to make appointments, and for this reason the state board should have sufficient power to organize a perfect system of local boards.

# DOMESTIC VARIETIES.

## What My Wife Said.

"A word fitly spoken is like apples of gold in pictures of silver."

"John," said my wife one night, when, after a hard and trying day, I sat awaiting the preparation of the evening meal: it had not only been a hard day, but it was a troublous time in business, when other business men besides myself went home with the burden of the day's care scarcely lifted from the shoulders, and sought the comfort of the home nest and the consolation of home friends. I know that I showed my weariness and anxiety in my face as well as in my attitude, and the look of loving sympathy with which she had greeted my rather dejected home-coming half an hour before had in a measure prepared me for the words of cheer and helpfulness I knew she was about to utter. In all our married life Jennie had never failed, in hours of weariness and discouragement, to bring forward some ray from her sunny mind and turn it into my gloomy path, and lighten it up, and inspire me with somewhat of her own sanguine hopefulness. It never failed, too, to be some wise, well chosen, thoughtful word, exactly suited to the occasion, and fitted to the circumstance. She was concise and terse in what she said, and never given to long speeches, but the words were formed in a busy and thoughtful mind, and came from a warm and sympathetic heart.

"John," she said—and as she stood there, beaming, before me, having just left her task in the dining-room to come to me, as if anxious to convey the loving thought betimes, that it might the sooner raise my jaded spirits, I noticed how the passage of the years had changed her face. It seemed to my partial eyes that nothing had been lost of the bloom and freshness that had marked it when years before I, unquestionably younger and fresher than now, had been her favored suitor among all the village gallants, but that it had grown richer and deeper. She had never been accounted beautiful in the accepted sense of the word, but hers was a beauty that was more than skin deep; and now, as I gazed, it seemed to come from soul depths, and glow in every feature, matured and dignified, but in no way faded by the action of time. I noted all this, and more, as she came forward and laid her hand on my forehead in the caress so old and familiar in its method, yet so new and welcome in its electric sympathy. The caress itself seemed to bring me some presage of the meaning of her yet unspoken words; and such is the quick intelligence of sympathetic hearts, such the perceptive anticipation, the faith,

perhaps it was, of a nature hungering for comforting sympathy, and knowing that it is coming from a never-failing source, that I could almost have repeated in advance of their utterance the words she was about to speak.

"John,"—and I have no doubt at all that the little woman realized as she spoke the words, how much of cheering inspiration they would bring to me, for her face shone with a peaceful, contented happiness, that might have seemed all incongruous with the anxious state of my own mind, had I not so fully sensed their blessed significance, and felt so confident that what she had to say to me would be of such a nature as to completely justify the happy anticipation that gleamed in her eyes and trembled in her voice; "John,"—and as she spoke a new light seemed to break in the comfortable home room, and reveal its details in a freshly glorified aspect and a newly harmonized *ensemble*, like a beautiful picture which has ever since remained, an immortal painting on the canvas of my memory—the bright grate fire with its crackling blaze, the sleepy pussy-cat dozing beside it, Jennie's own rocking-chair opposite my corner, the pictures on the wall, the cheerful glimpse of the supper-table through the open dining-room door, and by my side the brown-haired, smiling, loving, comforting wife; I have often conjured up the picture since, and dwelt upon the beauty of it all, and thought how after all it was what she said and the impressive manner of it that gave the scene its peculiar life, and grace, and brightness, such as it could have derived from no other source; "John,"—even Tabby by the fire seemed to catch the spirit of the moment as she raised and stretched from her nap and looked up expectantly; "John,"—and I remember now how the clink of the dishes, as the girl was putting the finishing touches to the table, seemed to float in, and mingle and chime with her voice, not jarring with the spell, but seeming to rise to her inspiring theme, and to form a fit accompaniment to the whole; "John," she said, and her voice took on a richer tone as the words followed, while her eyes, looking down into mine, encouraged with their earnest, hopeful joy, the confident, expectant gaze they met from mine—"John, dear, supper is ready!"

—*Good Housekeeping.*

*The Sanitary Inspector says:* "Theoretically there is a great advantage in closed rooms in using electric light instead of gas light, and practically it has been found in the Post-office Central Savings Bank in London, that during the past two years, since the introduction of the electric lights into the building, there has been a marked decrease in the amount of time lost from sickness by the clerks and employés. They get rid of the undesirable products of combustion which accompany the use of gas lights, and they therefore have a purer air to breathe."

ONLY TOO TRUE.—"What is the matter, doctor?" asked a reporter of a well known chemist. "I am mad; mad at chemistry and the drug business. Look here! Oil of vitriol is no oil, neither are oils of turpentine and kerosene. Copperas is an iron compound and contains no copper. Salts of lemon is the extremely poisonous oxalic acid. Carbolic acid is not an acid, but an alcohol. Cobalt contains none of that metal, but arsenic. Soda water has no trace of soda, and sugar of lead has no sugar; cream of tartar has nothing of cream, nor milk of lime any milk. Oxygen means the acid-maker, but hydrogen is the essential element of all acids, and may contain no oxygen. German-silver has no silver, and black-lead no lead. Mosaic gold is only a sulphide of tin. These are only some of the mistakes of nomenclature in cur business."

—*Medical Herald.*

## Dolly.

Her head upon my shoulder, pressing closely to my side,
With downcast eyes, stands Dolly, "adorned as for a bride,"
With a wealth of flowing tresses hanging low about her breast,
Like a sea of transfixed billows when peacefully at rest.

Of queenly mien and manner, with gracefully poised head,
With footsteps strong and hearty, of no uncertain tread,
With eye as bright and flashing as stars in cloudless sky,
Commanding the attention of every passer-by.

With a voice that holds in keeping a nay as well as yea,
Of kind and gentle bearing, at either work or play,
Of affectionate remembrance for old and long-tried friends,
Of courteous demeanor that wins, but ne'er offends.

Tight fitting as a "Jersey" her dress is ever neat,
Without a spot or blemish from head down to her feet,
And they who'd be her betters, are not worthy to unloose
From her trim and dainty ankles the latches of her shoes.

A mark of admiration wherever she may go,
Her ears are always open for every sound of woe;
Proud-spirited, yet gentle, a flirt without remorse,
Who would n't give a kingdom for such a splendid—horse?

—*Good Housekeeping.*

The foolish woman darkeneth her house to save her carpets and keep out flies, and behold her children grow pale, and disease marketh her for its prey.

### Insulting Proprieties.

Since I was ten years old there are a few things that have always made me mad, and one was to ask me, the minute I mentioned approvingly a man's name, whether he was married or not. What earthly difference did it make? And another was to have a man change his tone and manner to me when he got married. Mr. Brownell talks about the man finding the woman treating him differently when he marries. I assure him that is not half as asinine as when the man who has known me since I was as high as the table and called me Mollie all my life, begins to address me as "Miss Bawn" the minute he gets a wife. What did he mean by calling me Mollie at all ever, if it was something that controvenes the rights of his wife? I was not engaged to him; he was not my lover. I thought we were the simplest, matter-of-course old friends. But, lo! it seems there was something else in it according to his view, and now I have a right to be insulted over the past, it seems to me. I'd get a divorce from a man I married that acted like that.

—*New York Graphic.*

### A Useful Cement.

The following mixture has been used with the greatest possible success for the cementing of iron railing tops, iron gratings to stone, etc.; in fact, with such effect as to resist the blows of a sledge-hammer. This mixture is composed of equal parts of sulphur and white lead, with about one sixth proportion of borax, the three being thoroughly incorporated together, so as to form one homogeneous mass. When the application of this composition is to be made, it is wet with strong sulphuric acid, and a thin layer of it is placed between the two pieces of iron, these being at once pressed together. In five days it will be perfectly dry, all traces of the cement having vanished, and the work having every appearance of welding.—*Popular Science News.*

### To Detect Lead in Water.

Place two perfectly bright and clean knitting-needles in a glass nearly full of the water to be tested, and add eight or ten drops of acetic acid, or a teaspoonful of vinegar. The needles should be carefully revolved occasionally. If lead be present, dark or black spots will soon appear upon the needles, and in six or eight hours they will be covered with a gray coating, the depth of color of which will depend upon the amount of lead in the fluid. A magnifying glass may be used, if necessary. Where the amount of lead is exceedingly small, the deposit may not be immediately detected, but after standing for twenty-four hours becomes yellow.—*National Druggist.*

### Bad Diet, and Not Overwork.

Mrs. Mary Blake, in *The Golden Rule*, writes as follows respecting the diet of school children: It is a very common and mischievous notion that unless an article of food doubles up a child with colic, or throws him into a fever, within twenty-four hours, it does him no harm. We often see whole families of children who are thin, sallow, and nervous. They lose many days of school because they cannot "keep up," and the parents complain bitterly of "our high pressure system." They are bilious, or have headache, or "summer complaint," or they cannot sleep, or they have no appetite. In short, they are sick half the time, or half sick all the time. But suggest to the mother of this family that perhaps her food is not suitable, and she will indignantly answer, "Oh, no! they never eat anything that hurts them." The blame is laid on malaria, or on overstudy, or nervousness, or delicate constitution, or anything but the real reason. The trouble actually is, that the stomach is doing its hard work on *brain*. Brain and body call for strong, rich blood to build up their rapidly growing tissues, and to replace what exercise and study burn up. But what does the stomach get to make it of?—Greasy meats, with all the life-giving qualities cooked out of them; hot bread, and compounds like it; all kinds of fried abominations, whose original excellence is destroyed by being steeped in boiling lard; rich pies and cake, sweets and candy. All these tax digestion to its utmost, and give little nutriment in return. Poor Jennie starts off to school after a restless night in a room with every window closed for fear of "the night air," with nothing for breakfast but a cup of strong coffee "to keep up her strength," and a hot roll. "She never has any appetite mornings." She comes home to dinner faint and hungry, to find roast pork and mince pie, or fried ham and heavy apple dumplings, which her poor eager stomach takes and tumbles over and over all the afternoon, while her brain labors heavily with the afternoon lessons. A supper with something which tempts, but does not nourish the tired stomach, finishes the day.

—*Annals of Hygiene.*

### The Meanest Man.

Father—Bobby, are you too lame and tired to walk a mile and a half to the circus?

Bobby—No, indeed, father.

Father—Well, then, you will go out in the yard and run the lawn mower until bedtime. I've no circus money this year.—*Omaha World.*

To stone raisins easily, pour boiling water over them, and let it drain off, so as to loosen the stones.

## CONTAGIOUS AND INFECTIOUS DISEASES IN NEW HAMPSHIRE.

The following contagious and infectious diseases were reported for the month of May:

Diphtheria: Nashua, Weare, Francestown, Newport, Hancock, Manchester, Keene, and Claremont. Nashua reported ten cases.

Typhoid fever: Rye, Keene, Exeter, Laconia, and Rochester.

Typhoid pneumonia: Rye, one case.

Scarlet-fever: Pittsfield, Hooksett, Rye, Manchester, Claremont, Brookline, and Laconia. Manchester reports eleven cases, all light.

Whooping-cough: Brookline.

Measles: Manchester. In the epidemic of measles which was reported from Walpole last month there were 125 cases and one death. The disease is now abated.

Disinfection and isolation have been practised in the above diseases, and schools were closed in several towns until all danger was passed. There is no epidemic of any kind in the state at the present time.

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We are in receipt of many words of encouragement and appreciation of the SANITARY VOLUNTEER, both from in and out of the state, among which is the following highly prized letter:

MY DEAR DOCTOR:

I have received several numbers of the SANITARY VOLUNTEER, and find it full of good things. It is read by different members of my family with pleasure and profit. Although the inevitable infirmities of four-score and two years unfit me for active canvassing, I take pleasure in recommending it to others as occasion offers. It richly merits a place in every household in the state. With my best wishes for your continued success in your laudable efforts, I remain

Faithfully yours,

M. R. WOODBURY.

Whitefield, June 6, 1889.

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### Sounds About Right.

Teacher—"Now, children, I will give you three words—boys, bees, and bears—and I want you to compose a sentence which will include all three words."

Small Boy—"I have it."

Teacher—"John McCarthy, you may give us your sentence."

John McCarthy—"Boys bees bare whin they go in swimmin'."

THE

# SANITARY VOLUNTEER

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## SANITARY AND OTHER NOTES.

The Pennsylvania Railroad has issued orders requiring a thorough cleaning and disinfecting of all its passenger coaches at least once a week. The plan is to be heartily commended, and all other railroads ought to follow this excellent example.

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John H. Rauch, M. D., the efficient secretary of the Illinois State Board of Health, is now in Europe, where he will remain a few months. Dr. Rauch has for many years been one of the foremost sanitary workers in this country, and we trust he will return, after his well earned vacation, rested and invigorated.

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Several anonymous communications have been received by the state board of health during the last month. The board has given public notice that such communications will receive no attention whatever. If a person has not the moral courage to sign a letter or complaint, it is not unreasonable to assume that either the matter is of very little importance, or else that the grievance is based upon some other motive than the public good. There may be some exceptions to this rule, but a complaint without a signature will find an immediate resting-place in the waste basket.

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The numerous applications to the legislature for charters to construct water-works indicate that many towns are waking up to the importance of a good supply of unpolluted water. The advancement in this direction has been great during the past few years—since the danger arising from wells has become so generally understood by the public. There are many towns in this state that can testify to a marked improvement in the health of the people after the construction of a public water-supply. Wells are the repositories for typhoid fever and other filth diseases, and the sooner they are abandoned the better for the community.

There are several bills before the legislature of a sanitary nature that ought to become law. The measure providing for a commission of lunacy is a very important one, and should unanimously pass both houses. It provides for remedial treatment for the insane poor at the expense of the state, and places all the indigent insane under the supervision of the board. It is a discredit to the state that some such law was not enacted years ago.

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The Fabyan House has just had a new system of plumbing put in throughout, and it is now said to have a system of sewerage second to none. It is such work as this that builds up the reputation of summer resorts. This noted house has a splendid water-supply, and with the improvement just mentioned it ought to be unsurpassed in all that goes to make up a healthful and invigorating retreat during the heated term of summer.

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Regarding the subject of sanitary improvements at summer resorts, we are glad to be able to say that the contemplated sewer at Jefferson, mentioned in the June number of this journal, is now being constructed. Jefferson is taking on new life, and we see no reason why its hotels and farm-houses should not be filled with summer guests. Its beautiful location and fine scenery will give the town the widespread fame it merits if its sanitary administration is well conducted and looked after each year.

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It is reported that several Milwaukee physicians have formed a league which will use the bicycle in making visits, especially in the night. This is a good move. There is no reason why the bicycle should not be used by professional and business men. The present "safeties" are elegant machines, easy to mount, and without danger from "headers." In fact, they are to be commended, not only for usefulness, but as an unexcelled means of healthful and exhilarating exercise.

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Whatever doubt there may be as to whether the germ of yellow-fever has been discovered, it would seem that, if we give due credit to the law of evidence, we must admit that the inoculations with the attenuated virus of this disease practised by Friere, of Brazil, have been a success. The total number of persons inoculated up to February of the present year is 9,083, so says Friere himself in a letter to Dr. J. McF. Gaston, of Atlanta, Ga. Of this number only two tenths of one per cent. have died of the disease, while among a similar class not protected by inoculation the mortality has been large. The fact that the Brazilian

government endorses these inoculations, that Friere is supported by many of the most prominent physicians, and that the results are to be seen through the published records, is evidence which we have not seen successfully controverted. We believe that the United States government should investigate this method with more thoroughness than it has yet done, for thus far no measure offers so much hope of subduing the disease as that advanced by Friere and his confrères.

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## A FEW DOLLARS v. THE HEALTH OF A FAMILY.

In February last a physician brought a sample of water to the state board of health, and asked to have it analyzed, as he suspected that the water, which was from a family well, was having a bad effect upon the persons using it. The sample was forwarded to Prof. E. R. Angell, of Derry, and under date of February 22 he made the following report:

### SANITARY ANALYSIS OF WATER.

(Marked) . . . . . N. H.

| | |
|---|---|
| Odor, | Very foul. |
| Color, | Yellowish. |
| Evaporation, | Nearly quiet. |
| Residue, | Large quantity—yellowish. |
| Ignition of residue, | It blackens intensely. |
| Total solids, grains per gallon, | 104.0 |
| Volatile and combustible matter, | 20.9 |
| Hardness, degrees, | 52.5 |
| Alkalinity, " | 28.5 |
| Chlorine, grains per gallon, | 27.3 |
| Ammonia, part per million: | |
| Free ammonia, | 0.824 |
| Albuminoid ammonia, | 0.460 |
| Nitric acid, | Very large quantity. |
| Nitrous acid, | Extremely large quantity. |
| Lead, | None. |
| Iron, | Trace. |
| Sulphuric acid, | Much. |
| Carbonic acid, | Very large quantity. |
| Sediment, | Much. |

Microscopic examination—water full of bacteria; many fungi.

This water is horribly polluted. If it were not polluted, it contains too much solid matter for domestic purposes.

In a private letter accompanying the above report, Prof. Angell writes,—"The sample from . . . contains a wonderfully large

amount of solids, and is fearfully polluted. There can be but little question that the vault has direct communication with the well. It contains the most nitrous acid of any water I ever met. After it was diluted with 100 volumes of distilled water, it gave a sharp reaction for that acid."

The state board of health immediately notified the owner of this well of the result of the analysis, and asked him to fill a blank which the board requires in such cases, giving the location of the well in respect to surrounding dangers of pollution, the effect of the water upon those using it, etc.; but up to date no information has been received from him. We have learned, however, through sources believed to be thoroughly reliable, the following facts: That the owner of the well did not furnish the information asked for, through fear that the same would be published and that he could not then sell his place, which he desires to do, without digging a new well, or providing some other water-supply; that there has been a large amount of sickness in the family, two members having died from a disease said to be consumption; that a son is in a debilitated and poorly nourished state; that the wife has been ill more or less; and that the husband has been afflicted with quinsy sores.

This water, which is so horribly polluted, has been used for years for all domestic purposes, and without doubt has been the cause of much sickness in the family.

We give the above facts to illustrate the dangerous degree to which well-water may become polluted without attracting the attention of those using it; and it further shows the thankless manner in which any attempt to improve or protect the health of a family is sometimes received. We withhold, for the present, the name of the locality and of the owner of the well, out of consideration for others.

The influence of polluted drinking-water in the causation of disease has been repeatedly proven by the investigations and observations of the state board of health, as well as by sanitarians everywhere. Hundreds of polluted wells have been closed in this state within a few years, as a result of such investigations, and this is the first instance that has come to our knowledge in which the owner of a dangerously polluted well has desired to keep the matter secret in order to dispose of the place, with its poisonous water-supply, to some unsuspecting family.

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## EDUCATIONAL MISTAKES.

The tendency of parents and others to send their children to school as soon as they have apparently recovered from acute illness is greatly to be deplored. For instance, after fevers, severe cases of measles, troubles

with the digestive organs, and diseases incident to the summer months, it requires time for the brain to recover its former condition of nutrition and power. The same holds good after severe blows on the head, or even slight cases of concussion, and the child should be allowed prolonged mental rest, else a tendency to epilepsy or other functional or organic disease of the brain may be evolved.

Parents, guardians, and school boards should be ever mindful of the possible dangers to the young, while teachers, so far as time will allow, should study the nature of each pupil, and be able to give advice upon conditions that may affect the child's future development. Excessive study in the child is a mistake from every point of view. It defeats its own ends, as the undeveloped mind cannot assimilate beyond a certain rate, any more than the digestive organs. Study under pressure becomes distasteful to children, and consequently encourages the shirking of as many tasks as can be evaded.

It is a mistake because it assumes that the acquisition of knowledge is everything, and forgets that it is the organization of knowledge, for which time and thought are required, that is the essentially important matter. Spencer says,—"It is not the knowledge stored up as intellectual fat that is of value, but that which is turned into intellectual muscle."

It is a mistake in another way, because in the young it interferes with the due development of the whole body to cultivate a part of an organ and not pay attention to the whole. An increase of circulation of blood through the brain results in a short time in diminished circulation through the limbs and other parts of the system.

Even the college youth and the mature brain-worker are cognizant of the cold feet and hands accompanying mental effort, and such conditions in the immature child cannot but be detrimental. Parents oftentimes are at a loss how to account for sudden illnesses of their children occurring during the examination week, when a little thought of how the mind of the little sufferer had been pushed at the expense of the other organs would explain all.

Even supposing that mental power would be the result, it would be a mistake, as the general physical power necessary to make it available in the "battle of life" is wanting, and unless we have a sound mind in a sound body the first requisite for success in life is absent. However, we believe increased mental power is not the result. The abnormally rapid advance of any organ in respect to structural changes involves a premature arrest of its growth: therefore a precocious brain nearly always ultimately falls short of its normal standard of size and power.

G. P. CONN, M. D.

## PRECAUTIONS AGAINST TRICHINOSIS.*

This disease (called also *Trichiniasis* and the *Trichina disease*) is caused by the presence of a microscopic worm (trichina spiralis) in the flesh of the body. This parasite was first discovered in 1835, by Mr. J. Hilton, in a body he was dissecting in Guy's Hospital, London, and was named by Prof. R. Owen, the great English naturalist. The effects of its presence in the human body were not known until 1860, since which time it has often been recognized as the cause of severe and fatal illness.

### HOW THE DISEASE IS ACQUIRED.

The source from which this parasite is introduced into the human body is the flesh of the hog. When pork which has not been thoroughly cooked in every part is eaten, some of the trichinæ may be introduced alive from the pork into the stomach of the person. Once in the stomach and intestinal tract, the worms, which were dormant in the pork, take on an active life. They increase in size, become sexually mature, and multiply in countless numbers. They next eat or bore their way, from the stomach and intestines, into every part of the body, finally locating permanently in the muscles of the arms, legs, and trunk, where they form a sack or covering for themselves, and become quiescent during the rest of the person's life. So small are these parasites that one anatomist estimated 700,000, and another anatomist 5,000,000, worms in a single pound of human flesh. It is no wonder, then, that they create a disturbance when once in the body. The hog obtains the trichina from rats, which it often kills and eats. Most mammals have in their flesh worms like the trichina, but the hog trichina is the only one which, in civilized countries, infests man. Hogs should not be fed on distillery swill or glucose corn, as both may contain dead rats; nor should they ever be kept in slaughter-house yards.

### SYMPTOMS.

While trichinæ are breeding in the stomach and migrating through the body, they often produce very serious disturbances of the system. These symptoms come on within a very few days (from one to four) after the infested meat has been eaten. The symptoms are not uniform, but generally resemble those of the early stages of typhoid fever, or of rheumatism. There is at first thirst, loss of appetite, pain in the abdomen, sickness at the stomach, and diarrhœa (but sometimes constipation). There is generally great physical and mental prostration.

*Taken from the annual reports of the Pennsylvania State Board of Health by permission of the Secretary.

Usually there soon occur pains in the muscles, much resembling those caused by muscular rheumatism. There is pain, tenderness, stiffness, and swelling, as in rheumatism. Sometimes there are dropsical swellings, especially in the face and about the eyelids. But the most marked sympton is the rheumatoid pain.

### PREVENTIVE PRECAUTIONS.

Raw and partially cooked pork must be entirely abandoned as an article of diet. Cook all forms of pork thoroughly before it is eaten. This includes sausages, "puddings," "scrapple," boiled ham, etc. Salting, pickling, or smoking pork does not kill the trichina. Sausages may be first boiled and then fried. The central portions of large hams are often not thoroughly cooked when boiled. The parasite is not in lard.

The trichinæ may sometimes be seen with the naked eye, as minute white spots in pork, on careful examination. Such meat should at once be rejected.

### TREATMENT.

When it is known that raw pork has been eaten, medicines should at once be given to cause vomiting and purging. A skilled physician should be called immediately, and the case confided to his care.

To give an idea of the frequency of this disease, it may be mentioned that since 1875 the present president of this board, in his capacity of health officer of Erie, has detected no less than six instances in and near that city, causing several deaths, and not less than fifty cases of serious and painful illness. There is no good reason for supposing that it is more frequent in that part of the state than in any other, but its presence constantly escapes recognition. In order that this may not continue to be the case, every health officer and every board of health should be provided with a microscope of low power for the examination of pork. If an ordinary microscope is not available, one made for the purpose by the "Bausch and Lomb Optical Company," of Rochester, New York, and called the Trichinoscope, will be found the cheapest and most convenient. Mr. E. A. Rau, of Bethlehem, who made the microscopic examination in the case from which the illustrations in this circular were taken, thus describes its use:

"In using the Trichinoscope, I find it best to soak the slices of pork in strong acetic acid for five or ten minutes, then rinse in water and place in the Trichinoscope with water flooded over the sections, then compress them and adjust the focus of the doublet. Although the directions are to hold the Trichinoscope up to the light, other positions will answer, as I have found by trial."

The slices for examination should be very small, and as thin as a

sheet of paper. They may be cut with a very sharp knife, a pair of curved scissors, or a Valentin's double-bladed knife, to be found at any opticians.

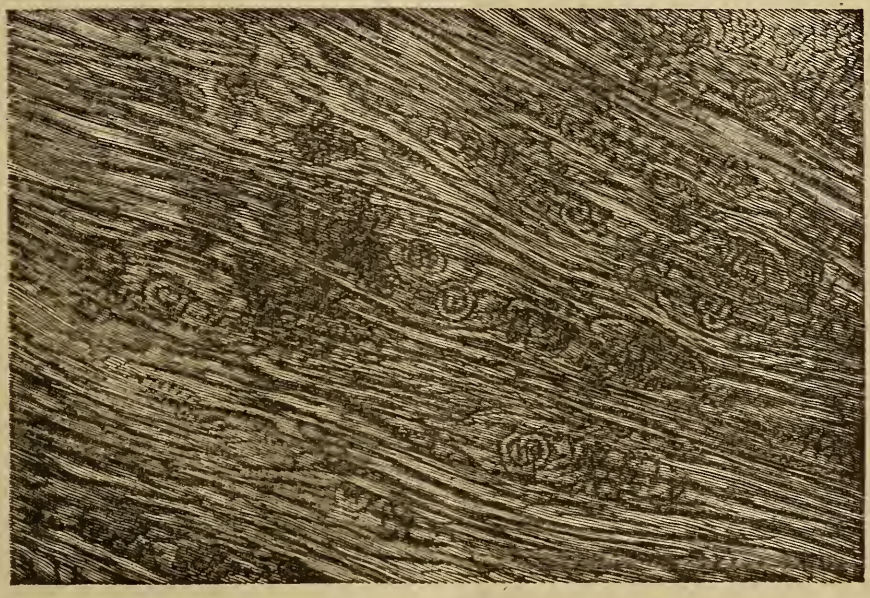
No. 1—Specimen taken from the Deltoid muscle of Miss A. S., aged 13 years, victim of trichinosis. Died at Bethlehem, Pa., February 19, 1886.

If it is impossible to obtain a specimen of the suspected pork in order to establish the diagnosis, a small piece of muscle may be readily taken from the patient's arm by the physician, by means of a little instrument (muscle harpoon) made for the purpose, and sold by the instrument-makers.

No. 2—Another specimen from the same case. Length of trichina stretched out, 1-30 inch; diameter, 1-700 inch. Magnified 38 diameters.

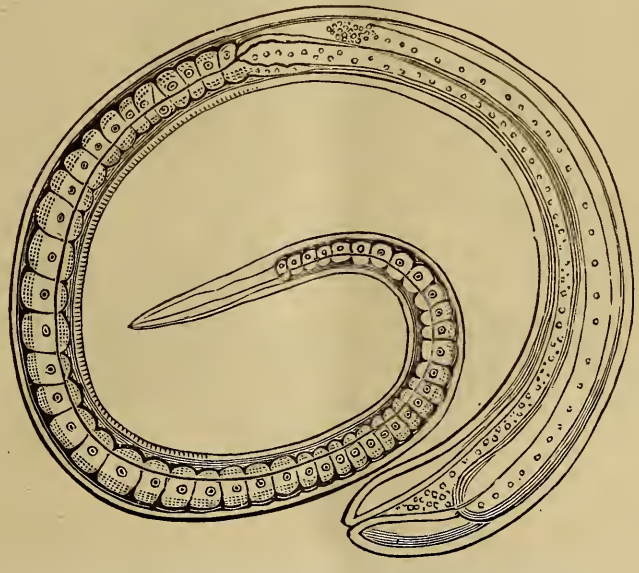
The case above referred to, from which the illustrations were made, is reported by Dr. Rau as follows:

On February 8, samples of pork were submitted to me for examination



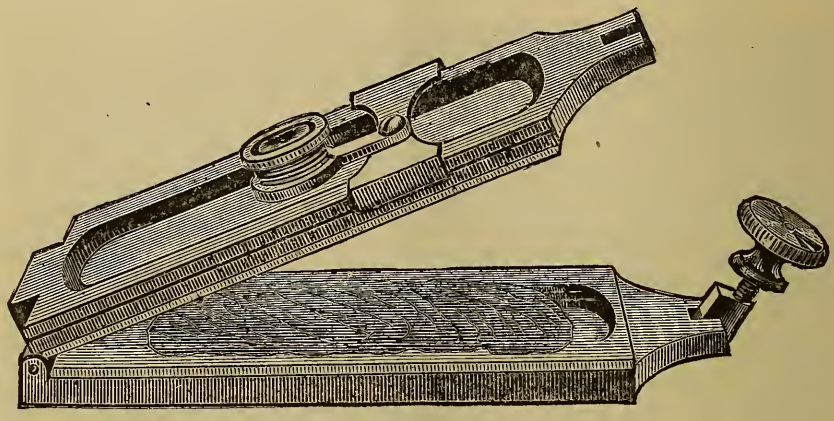
No. 3—Specimen taken from the pork which caused the death of Miss A. S and her mother, Bethlehem, Pa., February, 1886.

by Dr. J. H. Wilson, being part of the same lot of meat as that used by a family who were apparently suffering with trichiniasis. Thin sections were cut from parts of a shoulder and of a ham, also portions of meat from the ribs and vertebra were examined microscopically, all revealing various numbers of trichinæ, frequently as many as six to eight to a field view, the diameter of which was .5 mm. An eight-tenths objective was employed on my microscope with an A eye-piece, yielding sufficient



No. 4—Single trichina, magnified 280 diameters.

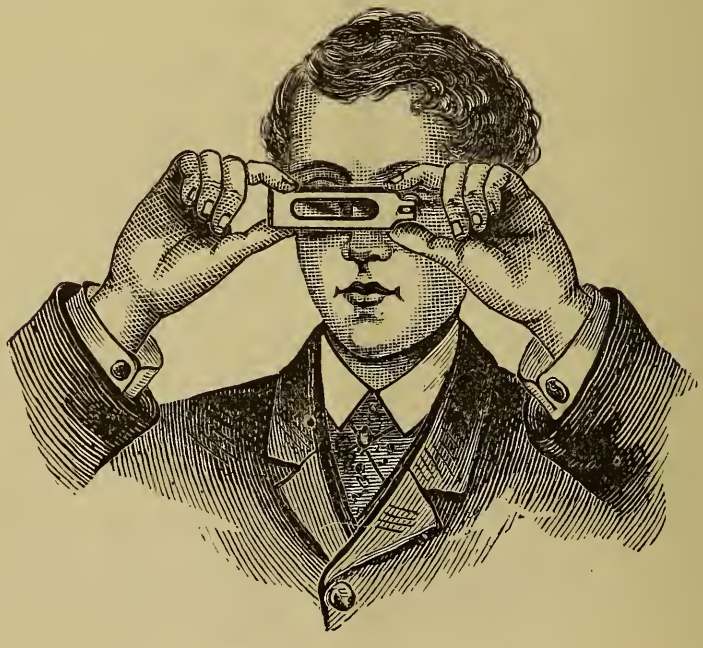
amplification to obtain the desired results. The family, consisting of man and wife, and daughters aged five and thirteen, for several days ate freely of the meat of a hog of their own raising, which was slaughtered



No. 5—The Trichinoscope.

on January 6. It is hardly necessary to note that the meat consumed was imperfectly boiled or fried, nor were the family aware of the possible danger that might result from a disregard of these precautions.

On the 13th of January, and for several days succeeding, the family became ill with the usual symptoms of diarrhœa and vomiting, followed by severe muscular pains, fever, &c. Medical aid was summoned, but afforded no relief, and a change of physicians was made, Dr. J. H. Wilson taking charge of the cases. After a diagnosis had been made by Dr. Wilson, examinations of the pork used revealed the results as previously stated.



No. 6—Mode of using the Trichinoscope.

On February 19, the daughter thirteen years of age died, and at a *post mortem* a small portion of the deltoid muscle was excised by Dr. Wilson, which, after being placed under my microscope, was found to be largely infested, showing twelve to eighteen trichinæ, and in some parts forty-two, to a field view. This latter examination completed the chain of evidence thus far, and no further examinations were made in this case. After preparing specimens for the microscope, and selecting such from the human subject as appeared of most interest, I made photographs with a two-thirds objective, and herewith submit the result of three of the best exposures. In one of the photographs it will be noticed a trichina became sufficiently stretched to enable me to make a measurement, its length being $\frac{1}{30}$ and diameter $\frac{1}{700}$ of an inch.

Not the least interesting feature was the fact that for two days these helminths, while temporarily placed in water on a slide under thin glass covers, showed considerable activity, coiling and uncoiling. especially after being freed from the muscular fibres. None of the mature intestinal trichinæ were examined. On March 8 the mother of this family died, and a *post mortem* resulted in finding the muscles infested to the following extent: In the deltoid three to nine, rectus femoris two to six, and in the diaphragm one to three, to a field view. The following organs were found free of trichinæ, viz.: Lungs, heart, spleen, liver, and kidneys. The liver, however, was found to be in a state of granular degeneration. Photographs of sections of the trichinous meat used by the family were made, and one of the best is herewith submitted, showing the parasites in an encysted condition. By request I examined five of the chickens that were killed for the use of the family, but in no case could I find any trichinæ, although the fowls had unknowingly been fed with some of the trichinous pork. I examined portions of meat of two other hogs raised on the same premises with the one infested, but found these free of the parasites. The owner of the animals positively asserts that his swine had always appeared to be in a healthy condition, notwithstanding rumors to the contrary. According to estimates, the number of trichinæ infesting a cubic inch in these cases was as follows: In the daughter 30,000 to 100,000, in the mother 3,000 to 26,000, and in the pork used 17,000 to 23,000. To what extent trichinous pork has been consumed in this vicinity has not been ascertained. Thorough boiling undoubtedly kills the parasites, and as this is usually done, it greatly decreases the number of cases otherwise possible.

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Probably there is no single source so productive of disease as that of polluted drinking-water.

## TO PREVENT CONSUMPTION.

Drs. Prudden, Biggs, and Loomis, pathologists to the Board of Health of the City of New York, having been requested to formulate a brief and comprehensive statement regarding the contagiousness of tuberculosis and the means of protection therefrom, have submitted the following:

The disease known as tuberculosis, and, when affecting the lungs, as pulmonary tuberculosis (consumption), is very common in the human being, and in certain of the domestic animals, especially cattle. About one fourth of all deaths occurring in the human being during adult life are caused by it, and nearly one half of the entire population at some time acquires it. The disease is the same in nature in animals and in man, and has the same cause.

It has been proved beyond a doubt that a living germ, called the "tubercle bacillus," is the cause, and the only cause, of tuberculosis. It does not seem necessary to state the facts upon which this assertion is based, for the observation first made by Robert Koch in 1882 has been confirmed so often and so completely that it now constitutes one of the most absolutely demonstrated facts in medicine.

Tuberculosis may affect any organ of the body, but most frequently first involves the lungs. When the living germs find their way into the body, they multiply there, if favorable conditions for their growth exist, and produce small, new growths or nodules (tubercles), which tend to soften. The discharges from these softened tubercles, containing the living germs, are thrown off from the body. In pulmonary tuberculosis these discharges constitute, in part, the expectoration. The germs thus thrown off do not grow outside the living human or animal body, except under artificial conditions, although they may retain their vitality and virulence for long periods of time, even when thoroughly dried. As tuberculosis can only result from the action of these germs, it follows, from what has just been said, that when the disease is acquired it must result from receiving into the body the living germs that have come from some other human being or animal affected with the disease.

It has been abundantly established that the disease may be transmitted by meat or milk from the tubercular animal. The milk-glands in milch cows often become affected with the disease when their lungs are involved, and the milk from such animals may contain the living germs, and is capable of producing the disease. Among stall-fed dairy cows, 20 per cent. or 30 per cent. are sometimes found to be affected with the disease. Tubercular animals are also frequently killed for food, their flesh sometimes containing the germs, and, if not thoroughly cooked, it is capable of transmitting the disease. Boiling the milk, or thoroughly

cooking the meat, destroys the germs. Although the meat and milk from tubercular animals constitute actual and important sources of danger, the disease is acquired, as a rule, through its communication from man to man.

Tuberculosis is commonly produced in the lungs (which are the organs most frequently affected) by breathing air in which the living germs are suspended as dust. The material which is coughed up, sometimes in large quantities, by persons suffering from consumption, contains these germs, often in enormous numbers. This material, when expectorated, frequently lodges in places where it afterward dries, as on the streets, floors, carpets, clothing, handkerchiefs, etc. After drying, in one way or another, it is very apt to become pulverized, and float in the air as dust.

It has been shown experimentally that dust collected from the most varied points in hospital wards, asylums, prisons, private houses, etc., where consumptive patients are present, is capable of producing tuberculosis in animals when used for their inoculation. Such dust may retain for weeks its power of producing the disease. On the other hand, dust collected from rooms in institutions or houses that have not been occupied by tubercular patients does not produce the disease when used for the inoculation of animals.

These observations show that where there are cases of pulmonary tuberculosis, under ordinary conditions the dust surrounding them often contains the "tubercle bacilli," and persons inhaling the air in which this dust is suspended may be taking in the living germs. It should, however, be distinctly understood that the breath of tubercular patients, and the moist sputum received in proper cups, are not elements of danger, but only the dried and pulverized sputum. The breath and moist sputum are free from danger because the germs are not dislodged from moist surfaces by currents of air. If all discharges were destroyed at the time of exit from the body, the greatest danger of communication from man to man would be removed.

It then follows, from what has been said, that tuberculosis is a distinctly preventable disease. It is a well known fact that some persons, and especially the members of certain families, are particularly liable to tuberculosis; and this liability can be transmitted from parents to children. So marked and so frequent is this liability, and so frequent is the development of the disease in particular families, that the affection has long been considered hereditary. We now know that tuberculosis can only be caused by the entrance of the germ into the body, and that this transmitted liability simply renders the individual a more easy prey to the living germs when once they have gained entrance.

The frequent occurrence of several cases of pulmonary tuberculosis in a family is, then, to be explained, not on the supposition that the disease itself has been inherited, but that it has been produced after birth by transmission directly from some affected individual. Where the parents are affected with tuberculosis, the children, from the earliest moments of life, are exposed to the disease under the most favorable conditions for its transmission; for not only is the dust of the house likely to contain the bacilli, but the relationship also between parents and children, especially between the mother and child, is of that close and intimate nature especially favorable for the transmission by direct contact.

If, then, tuberculosis is not inherited, the question of prevention resolves itself principally into the avoidance of tubercular meat and milk, and the destruction of the discharges, especially the sputum of tubercular individuals. As to the first means of communication, those measures of prevention alone answer the requirements which embrace the governmental inspection of dairy cows and of animals slaughtered for food, and the rigid exclusion and destruction of all those found to be tubercular.

For the removal of the second means of communication, *i. e.*, the sputum of tubercular individuals, the problem is simple when the patients are confined to their rooms or houses. Then, wooden or pasteboard cups, with covers, should always be at hand for the reception of the sputum. These cups are supported in simple racks, and at least once daily, or more frequently if necessary, should be removed from the racks and thrown with their contents into the fire. A cheap and efficient cup answering this purpose is now on the market, and is supplied by the druggists.

The disposition of the expectoration of persons who are not confined to their rooms or homes is a far more difficult problem. The expectoration certainly should not be discharged on the street, and the only practicable means for its collection seems to be in handkerchiefs, which, when soiled, should at the earliest possible moment be soaked in a solution of five per cent. carbolic acid, and then boiled and washed. Handkerchiefs thus soiled are exceedingly dangerous factors in distributing tubercle bacilli; for, when the sputum becomes dry, it is easily separated in flakes from the cloth, and then soon becomes pulverized and suspended as dust.

It becomes evident from what has been said that the means which will most certainly prevent the spread of this disease from one individual to another are those of scrupulous cleanliness regarding the sputum. These means lie largely within the power of the affected individual. It is furthermore to be remembered that consumption is not always, as was

formerly supposed, a fatal disease, but that it is in very many cases a distinctly curable affection. An individual who is well on the road to recovery may, if he does not with the greatest care destroy his sputum, diminish greatly his chances of recovery by self-inoculation.

While the greatest danger of the spread of this disease from the sick to the well is in private houses and in hospitals, yet, if this danger is thoroughly appreciated, it is, for the most part, quite under control through the immediate destruction of the sputum and the enforcement of habits of cleanliness. But in places of public assembly, such as churches and theatres, particularly the latter, conditions are different, and the safety would seem to depend largely upon a dilution and partial removal of the floating and possibly dangerous dust by means of adequate ventilation.

Rooms in private houses and hospital wards that are occupied by phthisical patients should from time to time be thoroughly cleaned and disinfected, and this should always be done after they are vacated before they are again occupied by other individuals. Steamship companies should be obliged to furnish separate apartments for consumptive persons, so that no person in the exigencies of travel need be forced to share his room with one who might be a source of active danger to him.

Drs. Prudden, Biggs, and Loomis desire especially to emphasize the following facts: (1) That tuberculosis is a distinctly preventable disease; (2) that it is not directly inherited; and (3) that it is acquired by the direct transmission of the tubercle bacilli from the sick to the healthy, usually by means of the dried and pulverized sputum floating as dust in the air.

The measures, then, which are suggested for the prevention of the spread of tuberculosis are (1) the security of the public against tubercular meat and milk, attained by a system of rigid official inspection of cattle; 2 the dissemination among the people of the knowledge that every tubercular person may be a source of actual danger to his associates if the discharges from the lungs are not immediately destroyed or rendered harmless; and (3) the careful disinfection of rooms and hospital wards that are occupied, or have been occupied, by phthisical patients.—*Science.*

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Dr. Durgin, chairman of the Board of Health of Boston, says,—"Diphtheria, like small-pox, is a contagious disease, and will spread from person to person, and from things which have become infected by the sick person. Being without the advantage of vaccination, as in small-pox, it requires at least thorough isolation, disinfection, and the quarantine of exposed or infected persons."

## INFLUENCE OF SEWERAGE ON DIPHTHERIA.

At a meeting of the International Medical Congress, which was held last year in Washington, Dr. Earle, of Chicago, read a paper which gave the results of his investigations into "The influence of sewerage and water pollution on the prevalence and severity of diphtheria." His inquiries were made within the states and territories of Minnesota, Dakota, Montana, Wyoming, Kansas, Utah, Idaho, and California; and from the results of it he draws the following conclusions:

First. Diphtheria occurs in the mountains and prairies of the great new North-west with the same malignancy as in cities.

Second. Diphtheria takes place with equal virulence in vicinities remote from sewers.

Third. Diphtheria, once present, the inhabitants living in damp sod houses, or over cellars containing decomposing vegetables, or in proximity to manure heaps, or poorly constructed sewers, seem to be in surroundings which increase the severity of the malady.

Fourth. The fact is again demonstrated, although developed incidentally, that the contagious element may be carried or transported thousands of miles in a manner difficult to understand.

Fifth. Testimony is abundant that the poison may be transported by means of cars and steamers. This fact calls for increasing watchfulness and more efficient means of disinfection than have been heretofore practised by our transportation companies.

Sixth. To such a degree is this terrible disease contagious,—a few in our profession, however, declining to acknowledge it, and the majority of the people persistently refusing to isolate their children,—it appears to me that the only method by which we can prevent the spread of diphtheria is by the enactment of laws compelling the people to assume some responsibility in regard to contagious diseases.—*Sanitary Inspector.*

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## HOT-AIR INHALATIONS IN PHTHISIS.

If one is to accept the statements of Dr. A. Stern at the last meeting of the Section on Practice of the New York Academy of Medicine, the desideratum that has been so long and so fruitlessly sought for, a positive cure for pulmonary tuberculosis, has now been attained. This cure, Dr. Stern claims, is effected by Dr. Weigert's hot-air inhalation apparatus, which he exhibited, and the use of which he explained. It is simple in construction, consisting of two copper cylinders, one within the other; and the air to be inhaled, which is heated by means of a Bunsen burner to a minimum temperature of 212°, and thus rendered perfectly aseptic, passes up between the two. The inhalation is to be used for four hours

each day—two hours at a time—and it can be taken either in a sitting or a reclining posture. It is advised, however, that when first commencing the treatment the patient should use the apparatus for thirty minutes only, twice a day. The temperature of the air inhaled is gradually increased from 212° to as high a point as the patient can bear without suffering inconvenience, 482° being the highest temperature as yet reached in any case in these inhalations.

As a result of the hot-air inhalation, it is claimed there is an acceleration of the pulse, while there is a diminution in the frequency of the respirations, and inspiration becomes deeper. There is at first an elevation of the body temperature, the rise being 1° to 2°, but after about an hour the temperature again subsides. Under the continued use of the inhalations the difficulty of breathing incident to consumption is soon markedly relieved; and there is at first a lessening, and then a total cessation, of cough. There is at first an increase, then a decrease, and, finally, total disappearance, of expectoration. All catarrhal symptoms disappear, as do the fever and night-sweats. There is a clearing up of the infiltrated portions of the lungs, and cicatrization of cavities, when these exist, is brought about; while the strength, weight, and appetite of the patient gradually increase. The microscopic examination of the sputa generally shows at first an increase in the number of the bacilli tuberculosis; but afterwards there is a total disappearance of the bacillus, and a complete cure is effected. The shortest period in which total disappearance of the bacilli has been noted is four months. This method of treatment, Dr. Stern said, in conclusion, has now been employed in one hundred and fifty cases, fifty of which were published in Vienna.

All this reads like a fairy tale, but it can safely be assumed that it will not be long before the method has been given a sufficiently extended trial to enable the profession to decide upon its merits. Dr. Weigert, the inventor of the apparatus, is a graduate of the College of Physicians and Surgeons of New York city, and is now residing in Berlin. We learn that Dr. Trudeau, of Saranac Lake, N. Y., has already used the hot-air inhalations with success in a number of cases. There is but little doubt that this method of treating phthisis will be extensively tried. It is to be hoped that the trials will be as careful as extensive, so that whatever of value there may be in the method will not be vitiated by any wrong conclusions drawn from improper and careless experiments and administrations.—*Jour. Amer. Med. Association.*

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Were it not for unsanitary conditions—filth—the annual mortality per one thousand of the population would probably be reduced to twelve instead of about twenty, as now exists.

# DOMESTIC VARIETIES

### Feet.

"A plump little foot, as white as the snow,
Belonging to rollicking, frolicsome Joe,
In a little red sock, with a hole in the toe,
And a hole in the heel as well.

"A trim little foot, in a trim little shoe,
Belonging to sixteen-year-old Miss Sue,
And looking as if it knew just what to do,
And do it in a way that would tell.

"A very large foot in homely array,
Belonging to Peter, who follows the dray,
So big that it sometimes is in its own way,
And moves with the speed of a snail.

"Ah! a very big thing is the human foot,
In dainty made shoe, or in clumsy boot;
So 't is well there are various tastes to suit,
And that fashion can't always prevail.

"The plump little foot, a beautiful sight,
And the trim little foot, so taper and slight,
And the very large foot, though much of a fright,
Are travelling all the same road.

"And it matters but little, how small, or how great,
So they never grow weary of paths that are straight,
And at last walk in at the golden gate
Of the city whose Builder is God."

But when encased in shoe-leather, whether it be thick or thin, tight or loose, good or bad fitting, the foot must receive considerable attention, else it will become "weary of paths that are straight" as well as of those that are crooked. The fact that nearly every one confesses to the torture of corns is direct evidence that this attention is not forthcoming, for with proper care the feet may be kept in as presentible and healthful a condition as the hands. Corns are the direct result of long-continued friction, uncleanliness, and neglect—a broad statement, but nevertheless true. The shoe prevents the free circulation of air and the evaporation of the natural moisture of the foot, and the high heel and pointed toe

cause a constant friction of the toes against the leather and against each other.

Corns are of three varieties: (1) Laminated corns, in which the hardened cuticle is arranged in layers; (2) fibrous corns, having an imbedded peg of hardened cuticle; and (3) the soft corn, which occurs between the toes, most commonly caused by the pressure of the joint of the little toe against the adjacent fleshy part which has been allowed to remain bathed in perspiration (for the hard, dry foot is seldom thus afflicted) and the part scalded; and, although the cuticle thickens, it does not become hard.

If the corn has already formed and become inflamed and tender, the first point is to reduce the inflammation. Thoroughly cleanse the foot by allowing it to soak in quite warm water, made soft with ammonia or Castile soap; then apply any good stick salve on a piece of linen, and remove all pressure, if possible. Allow the plaster to remain a day or two and again soak the foot well. The plaster may now be removed, and the cuticle will be found to be soft and white. Now with a pin (the point of a needle might break) gently raise a layer of the skin, beginning at the outside edge of the corn, and thus remove layer after layer until no hardened cuticle remains. If the corn is still tender, it may not be possible to "cure" it at once, and it should not be made to bleed. After it has once been reduced so that the cuticle over the part is of no greater consistency than on other parts of the foot, keep it so. After every bath look to the place, and if the cuticle is found to be thickening, remove a layer, and do not neglect it until it is forced to cry out with pain. A saturated solution of salicylic acid in flexible collodion is recommended to reduce inflammation, painting the corn twice a day, after which the cuticle may be pealed off; but it will stay *cured* only with regular and frequent attention, so long as the cause remains. Soft corns will yield to the same treatment.

Cutting the corn with any sharp instrument is a pernicious practice, and should never be indulged in; for, while it may give temporary relief, it perpetuates the evil. This treatment would appear to be quite common, from the fact that the itinerant scissors-grinder when asked to put a fresh edge upon a pocket-knife, inquired in a very matter-of-fact way, "How will you have it sharpened, mum, for parin' corns, or rippin'?"

A burglar who had entered a house at midnight was disturbed by the awakening of the occupant of the room he was in. Drawing his knife he said, "If you stir, you 're a dead man. I'm hunting for money." "Let me get up and strike a light," said the other, "and I'll hunt along with you."

### Fruit Shortcakes.

Fruit shortcakes are by no means so warmly appreciated as they deserve. There are many people even yet who have never tried them except in strawberry time, and some (it is a fact, strange as it may seem) who have not so much as heard or thought of any fruit shortcake but strawberry shortcake. Yet they may be made of almost any kind of soft fruit or berries, and an orange shortcake is almost as delicious as the strawberry itself. A mistake is made, I think, in making the shortcake too rich. It is not only more wholesome, but may be eaten more freely and frequently without cloying the appetite, and with a better relish, if made quite plain—severely so, according to some rich standards. Make the shortcake light and of generous thickness, and use plenty of fruit. It will split more smoothly if a hot knife is used. Another great improvement on the common practice: After the fruit has been spread on the under crust, lay on the upper crust with its upper side down, next the fruit, so that the last layer of fruit may be spread on the fresh-cut, inner surface of the upper crust. Try this once, and you will always practise it. And do not be too sparing of butter if you want the best results. There is no handier tea dish than a good shortcake, and some suitable fruit is always in season.—*Good Housekeeping.*

### A Precocious Iowa Youngster.

A Second street mother discovered a pack of cards in the pocket of her young hopeful, and threw it into a little bonfire in the back yard. She forgave the bright youngster when he attempted to tramp out the fire, singing, the while, "The Boy Stood on the Burning Deck."

—*Duluth Tribune.*

While I sought Happiness, she fled
  Before me constantly.
Weary I turned to Duty's path,
  And Happiness sought me,
Saying, "I walk this road to-day;
  I 'll bear thee company."

### Teaching Children.

Too many children never accomplish anything, because they fear both their parents and their teachers. Too many never succeed because they are made to feel they never can. Many a child who is full of animation and life and fun and happiness is made to hate his school and schoolbooks, because his teacher does not take the time and trouble to study his disposition, and thus learn how to govern him.—*Herald of Health.*

## "Thank You."

THE SIGNIFICANCE OF SINCERE AND SPONTANEOUS COURTESY.

There is nothing we can give that costs so little and counts so much as politeness. Not that surface dressing that, like whitewash when rubbed off, leaves an object entirely wanting in comeliness, but that genuine courtesy which roots in the heart and is fed by the truest purposes. Some people seem to think they can be independent of courteous manners because they are rich, or occupy honored positions. Some girls and boys are careless in manners, and thoughtless of the feelings of others, because their fathers are rich and bear titles; and I have known little people to be discourteous just because they happened to have a little higher standing in classes at school than some of their fellows. It is a good thing to be rich, to occupy higher positions, and to be at the head of one's class; but there is nothing that will so embellish a person who is thus fortunate as that genuine kindness of heart which thinks of the feelings and wishes of others at all times. One who has the germ of true politeness in his heart can never be boorish, and our aim should be to make the foundation of courtesy solid; then there will be no cracks in its superstructure. With a kind heart the face speaks the words of politeness, and the hands act the courtesy. We want no counterfeits, but the real thing. No "Thanks!" that come out like words from a rubber stamp, but the "I thank you" that is each time written with an individuality of its own. The appreciation of a kindness shown in the hearty "I thank you," warms the heart and carries a delightful thrill with it that awakens a harmony that kindles pure emotions, and strengthens one's faith in humanity.—*American Analyst.*

## Ted and the Telephone.

The telephone had just been put into Ted's home, and that small man could not get over the wonder of hearing it "talk." That same afternoon he fell into the way of the transgressors and was banished to the "penitent corner." Grandma looked up over her glasses and said, solemnly, "Do you think God loves such a naughty little boy, Teddie?" A moment's reflective silence, then, with suspicious alacrity, "I'll go 'n, telephone up and see!"

Hungry Tramp—Madam, will you please give me something to eat?

Lady—Well, here's a mince pie, but I'm afraid to have you eat it. The cook isn't sure that she didn't use "rough on rats" by mistake, and I was just going to put it in the stove.

Tramp—No; lemme have it. I've eaten mince pie and lived, and I'll take my chances on "rough on rats."

### Destroying Tattoo Marks.

Dr. Yasio, in the *Medical Press*, describes a process for removing these marks. A concentrated solution of tannin is poured over the mark and pricked into the skin as in tattooing. The spot is then rubbed over with nitrate of silver, which is allowed to remain until the pricks appear as black points. The silver is then washed off; the resulting inflammation forms scabs. When these drop, no trace of the mark is left. There is no danger of suppuration.—*N. E. Med. Monthly.*

"Do tell me, monsieur, what this delicious dish is," said pretty Mrs. H., the star boarder. "Zat, madame, zat is a grand triumph of ze art. Only ze Frenchman can mek ze delicious deesh—zat is ze—vat you call ze owel—ze pet owel." "Owl!" exclaimed a chorus of voices, and a dozen wry faces were made. "O monsieur, how could you have the heart to kill the poor thing?" chirked the star boarder. "It ees you zat meek so cruel accusations, madame; I no keel him—he die!"

Akin to the lightning-rod delusion is the common one that medicine (usually patent medicine) is necessary every time we have an ache or pain. Unfortunately, this error in the public mind is not being corrected as is the other. Myriad advertisements, even in our best periodicals, prove this to be true. Dr. O. W. Holmes never uttered a truer witticism than when he said "It would be an immense blessing to mankind were all the medicine of the world cast into the sea, but it would be awful on the fish." Why will people burden an already worn and tired body by dosing with medicine? In nine cases out of ten, care and rest would set all right; in nine cases out of ten, medicine makes it harder for nature to bind up the wounds. What is more irrational than dosing with patent medicine? We do not know what is wrong with our bodies, and we know even less of the medicine we take. Yet we close our eyes and gulp it down. The Lord preserve us: we need His help.—*Prof. A. T. Cook.*

The editor of a religious paper in Michigan solemnly promised his subscribers that he would sample all the patent medicines offered to him by advertisers, before he would insert the notices. This was four years ago. He is now an inmate of an inebriate asylum.—*Burlington Free Press.*

Doctor—Why do you think your husband's mind is wandering?

Mrs. Cutem—I know it. When I gave him his medicine just now he called me darling. He has not done that before for years.

A STRAIGHT ANSWER.—Kentucky Teacher (of infant geography class)—"Tommy Blood may tell us what a strait is."

Tommy Blood—"It 's just the plain stuff 'thout nothin' in it."

### The Reason Why.

Why does boiling render meat hard? Because the excessive action of heat causes the albumen of the meat to *set solid*, crisps up the fleshy fibres, and prevents heat having a gradual access to the interior.

Why, when a good soup or broth is required, should the meat be put in cold water? Because, as the heat is developed very gradually, there occurs an intermixture between the *juices of the flesh* and the *external water*. The soluble and savory parts of the meat escape and enrich the the soup.

Why are stews generally healthful and digestible? Because, being compounds of various substances, they contain *all the elements of nutrition*, and, as the office of the stomach is to liquefy solid food before digesting it, the previous stewing assists the stomach in this particular.

What causes the crackling noise when lard is put into a frying-pan? Lard always contains some portion of *water*, and it is the expansion of this water into steam, forcing its way through the fat, which causes the crackling noise. The heat at which fat or oil boils is much greater than that of water. When the crackling ceases the water has been driven off from the fat, and when the fat begins subsequently to boil or bubble, its heat will be very high.

Why, in frying fish, should the fat or oil be made very hot before the fish is put in? Because, if the temperature is low when the fish is put into the frying-pan, it becomes sodden in the steam formed by its own water; but if the oil be very much heated the water will be at once driven off, and the fish nicely browned by the scorching oil.

Why should fish or meat that is being fried be frequently turned? Because the turning assists the evaporation of the water. When the fish or meat is allowed to lie too long, steam is generated under it, and the substance becomes sodden; and the moment the steam is driven off the surface catches to the hot pan, and becomes burnt and broken.

Why is broiled meat so juicy and savory? Because the action of the fire, hardening its surface, seals up the pores through which the juices might escape. It acts in the same way that the sudden dip into boiling water does upon joints of meat, but more effectually. To turn broiling meat, never use a fork, but tongs; a fork opens an escape for the juice, and wastes the best part of the meat.

Why is cabbage rendered more wholesome and nutritious by being boiled in two waters? Because (according to Dr. Paris) cabbages contain an essential oil which is apt to produce bad effects; and he recommends that they should be boiled in two successive waters, till they are soft and digestible.—*Arthur's Home Magazine.*

## CONTAGIOUS AND INFECTIOUS DISEASES IN NEW HAMPSHIRE.

The following contagious and infectious diseases were reported for the month of June:

Diphtheria: Nashua 16 cases, making a total of 26 cases since the 1st of May. There has been considerable apprehension lest the disease assume an epidemic form. Rochester, Stratham, Claremont, Peterborough.

Scarlet-fever: Bethlehem, Claremont, Nashua, and Manchester. The latter city reports 63 cases, making a total of 74 cases since May 18. The clerk of the board of health makes the following report: "Up to June 22, when I last examined the city clerk's record of deaths, there had been no fatal case of scarlet-fever, and I know of none since. The mildness of the epidemic tends to make our people, and even many of our physicians, very careless."

Typhoid fever: Laconia, Rochester, Freedom, Boscawen, Rye, and Manchester.

Whooping-cough: Henniker and New Boston.

Influenza and epidemic catarrh: Canaan, many cases.

German Measles: Conway, many cases.

Measles: Manchester.

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## PUBLICATIONS RECEIVED.

*Good Health.* A journal of hygiene, conducted by J. K. Kellogg, M. D., Battle Creek, Mich.; monthly; price $1.25 per year.

*The Manifesto.* Published by the United Societies, Canterbury, N. H. Devoted to the interests of the Shakers; monthly; 75 cts. per year.

*White Mountain Republic.* Littleton, N. H.; published weekly, and devoted to the prosperity of New Hampshire; $1 per year.

*The Exeter Gazette*, Exeter, N. H. Weekly, $1.25 per year.

*Kearsarge Independent and Times.* Warner, N. H.; weekly; $1 per year.

*The Home Companion.* Troy, N. H.; devoted to stories, sketches, anecdotes, poetry, farm and household, news, etc. Monthly; 40 cts. per year.

*The Druggists' Circular.* New York; published monthly, and devoted to the interests of the drug trade; $2 per year.

*Bristol Weekly Enterprise.* Bristol, N. H.; W. R. Musgrove, editor and proprietor; $1.25 per year.

*Sandwich Reporter.* Sandwich, N. H.; devoted to the interests of Carroll county; weekly; $1 per year.

*The Analecta.* Pittsfield, N. H.; devoted to the interests of New Hampshire in general and Pittsfield in particular; weekly; $1 per year.

THE

# SANITARY VOLUNTEER

VOL. 1. AUGUST, 1889. NO. 8.

## SANITARY AND OTHER NOTES.

The attention of local boards of health and others is called to the article in this number entitled "Relating to Certain Nuisances."

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It is said that children born deaf and dumb can now be taught to speak. M. Pinel has constructed an electric screen, by which the sound is propagated by the action of the voice on the walls of the upper palate and larynx and communicated to the brain, which by dint of education may be comprehended.

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Health officers and local boards of health should make their monthly report to the state board of health on the *first day of every month for the preceding month.* A few boards have fallen into the error of reporting on the fifteenth of each month. A prompt report from every local board is required. Blanks sent upon application.

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Arsenical wall-papers have at last found an advocate. Mr. Matthieu Williams, in a recent number of the *Gentleman's Magazine*, regards these papers, so generally considered dangerous to health, as a useful protection in malarious regions. He says,—"I maintain that the hotels in the vicinity of the Campagna, the Pontine Marshes, the Maremma, and other malarious regions of Italy, should be papered throughout with brilliant green arsenical papers, and painted with Scheele's green or other arsenical pigment. The same should be done in New Orleans and all other such places, for the special benefit of non-acclimatized visitors."

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The last annual report of the superintendent of health of Providence, R. I., contains an interesting table showing the number and proportion at different ages of 854 persons who were attacked by scarlet-fever. The

figures indicate that the disease is most likely to attack children between the second and eighth years,—over 57 per cent. being between these ages,—and that after the fifteenth year there is little liability of a person's contracting scarlet-fever. This is an important fact, which parents should bear in mind, that no effort be spared to protect the children from this disease during this period of susceptibility.

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The patent medicine bill, introduced in the legislature by Mr. O'Connor of Manchester, met its death in the hands of the Committee on the Judiciary. The bill was too sweeping in its character, and was opposed by nearly all the druggists in the state. There is no doubt but that a law ought to be enacted that will prohibit the sale of some dangerous nostrums that are now openly sold, not only at drug stores but even in the country grocery stores. The difficulty seems to be in framing a law that will work no injustice to those who endeavor to place a medicine of merit before the people, and at the same time effectually reach the swindlers.

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Edward Atkinson, LL. D., the distinguished American economist, will present a paper at the next meeting of the American Public Health Association upon Scientific and Economic Methods of Cooking. The paper will be illustrated by stoves and other apparatus of Mr. Atkinson's invention, which will be in operation during the meeting. This subject, as it will be presented, will doubtless constitute one of the most interesting topics that will be brought before the meeting; and from our knowledge of Mr. Atkinson's methods we predict that the paper will be little less than a revelation to those who are so fortunate as to be present on that occasion.

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The New Haven (Conn.) Board of Health has recently issued two circulars upon the means of preventing diphtheria, scarlet-fever, and typhoid fever. The disinfectant recommended is carbolic acid. A weak solution is prescribed for clothing, &c., consisting of two and one half ounces of pure carbolic acid to one gallon of water. A stronger solution (double the strength of the weak) is recommended for the disinfection of all discharges. Directions regarding the individual care of the patient and surroundings are also given. If every local board of health would distribute circulars of this kind, much practical and valuable information would be conveyed to the public regarding the proper care of certain diseases.

## PENNSYLVANIA'S REPORT UPON NEW HAMPSHIRE'S CARE OF THE INSANE.

The trustees of the Pennsylvania State Asylum for the Insane have just made a tour of the insane asylums of the New England States for the purpose of gaining information that might be of value to their own institution. In their report just issued, under the heading "New Hampshire Asylum for the Insane," they say,—

This institution is situated three fourths of a mile from the business part of the city. It has 125 acres of land where the asylum is located, and 50 acres farther out in the country for pasturage purposes, also 13 acres near a small lake some miles distant intended for a sanitarium. This institution was first opened in 1842, and now has 332 patients: about 75 per cent. of these are private patients. It is the only public institution in the state incorporated by law, with twelve trustees appointed by the governor and confirmed by the council. Three of these go out each year. The state pays $4.00 per week exclusive of clothing, which is charged up as drawn upon requisition. Private patients pay according to their ability, as per contract. In addition to the main asylum there is the "Bancroft Building," standing alone, exclusively for private patients, provided with all the comforts and even luxuries of a home, where patients who are able to pay receive every needed attention. The institution, under the care of Dr. Bancroft, who succeeds his father, and who has been trained in this school from his youth, is admirably managed and conducted.

This state, in the care of its insane, with the exception of the few in this institution, is but little in advance of the civilization that existed when the insane were kept chained in cells, and when an admission fee was charged to the curious who desired to gaze upon them. According to the report of the trustees of the asylum, made in June, 1889, there are four or five hundred insane persons now at the several county farms. We were reliably informed that these poor, unfortunate creatures are kept in separate buildings near the almshouses, live upon food prepared by some of their own number, and at night are locked up without any one to look after them until the following day, and the only medical attention they receive is from the physician of the poor-house, who secures the place either as the lowest bidder or through political preferment, and who only visits the place when called. The county commissioners have control of the poor and insane, and are the absolute judges as to who shall be sent to the asylum. We are glad to know that the legislature now in session is being moved to some measures tending to the improvement of this pernicious system, which belongs to a past age.

The severe condemnation which this report places upon the care of our pauper insane is, we regret to say, merited to a much greater extent than it ought to be, and the fact has been recognized by the present legislature in passing a bill placing the indigent insane under the supervision of a board of commissioners of lunacy. While the county system

has gross faults that cannot for a moment be defended, it is but justice to say that some of the counties have made, within a very few years, most commendable improvements for the care and comfort of their insane. The law just enacted gives the board power to remove any indigent insane person to the New Hampshire Asylum for the Insane for remedial treatment, requires frequent inspections of all asylums, an examination into all matters relating to the health, mental condition, and general welfare of the inmates, and requires a due form of commitment in all cases. It is to be hoped that the time is not far distant when every stricture which has been made against the care and management of our pauper insane will be removed.

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## A DECISION.

The state board of health is frequently in receipt of letters from health officers and others similar to the following:

———, N. H.

STATE BOARD OF HEALTH:

GENTLEMEN: Some of our villagers have no access to sewers in the town, and cannot suitably discharge their drainage from their own lands. Have they a right to conduct their drainage into the street and discharge it there, or is the town required to provide what may be further needed? Is the town obliged to furnish a sewer, or, having built a sewer and authorized connections with it, is the town obliged to keep it free from obstructions? Yours truly,

——— ———,

*Health Officer.*

For the general information of those not familiar with the law bearing upon the subject referred to in the above letter, the following statement is made:

1. No person has a right to conduct drainage or to construct a drain so that its contents will be discharged into the street or highway, unless such drain is so connected with a sewer as not to produce a nuisance.

2. Every person is obliged to take care of his own drainage in such a way as not to produce a nuisance, and if he refuses so to do the health officer may abate the nuisance at the owner's expense.

3. The selectmen cannot be compelled to furnish a sewer except by vote of the town, but a town having constructed a sewer and having given permission for the public to connect therewith, is under obligation to keep said sewer free from obstructions and in good working condition. A town may, however, vote to discontinue a sewer in the same manner that it may discontinue a highway.

## THAT POLLUTED WELL.

Since the July number of this journal was published, we have received a report upon the well alluded to in the editorial entitled "A Few Dollars *v.* The Health of a Family." The owner says that the well is not now being used; that it is surrounded by barn, L, house, barnyard, and privy; is 30 feet deep, and he does not know its age; is 65 feet from sink-drain, 62 feet from privy, 40 feet from stable, 55 feet from barnyard, and 45 feet from pig-pen; that the privy vault is not cemented, and the sink-drain discharges upon the ground; that the general health of those using the water is poor, and that fevers, throat disease, and consumption have prevailed in the family.

The conditions surrounding this well are precisely like those that may be found at hundreds of farm-houses throughout the state, and doubtless a full examination of these wells would, in many cases, reveal water dangerously polluted, and a family history of disease and death which might have been avoided.

The amount of illness arising from polluted drinking-water is very generally unsuspected by the public. Every one should understand that water may be dangerously contaminated, and, like the horribly polluted well under consideration, not reveal its character either to taste, smell, or sight, especially to those habitually using it.

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## SANITARY IMPROVEMENTS.

TO THE SANITARY VOLUNTEER:

In the last number the attention of your readers was called to the sanitary improvements that were taking place in the town of Jefferson, in the fact that a sewer was being constructed, with the remark that the old town of "Jefferson is taking on new life,"—leaving the impression that the town is alive to its own interests, and is doing all this work. Such an impression does injustice to the public-spirited men composing the "Hotel and Improvement Co." of Jefferson, for, unaided by the town, this company, and the managers of hotels on Jefferson Hill, have expended about twelve hundred dollars in constructing a trunk line sewer, eight inches in diameter, to the river (nearly half a mile), where the sewage from the Waumbek, the Starr King, the Maple, and Plaisted hotels, as well as the cottages in the vicinity, is deposited in running water. They also have utilized a brook from the side of Starr King mountain to flush and keep this sewer clean.

It is safe to say, that while all hotel managers at our summer resorts among the mountains of New Hampshire are doing most excellent work

in protecting their guests from unhealthful and unwholesome conditions about their premises, none are more zealous in their work than those on Jefferson Hill.

It is true, that the town has not taken any part in the construction of this sewer, and that it was wholly done by the voluntary effort of men interested in making Jefferson Hill what nature fully intended that beautiful location should be, viz., one of the loveliest and most healthful places in New England; yet the town is entitled to honorable mention as having placed its roads in good repair, so that summer tourists can derive pleasure and comfort in riding through the town amid the picturesque and beautiful,—for in no part of New Hampshire has nature done more to please the eye than in the valley extending from Whitefield to Berlin. This is an important matter, and will do very much towards bringing Jefferson to the front as a summer resort. G. P. C.

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## RELATING TO CERTAIN NUISANCES.

Health officers and others in this state have realized that there was no justice in legalizing the construction of a privy, if forty feet distant from any street, dwelling, shop, or well of any other person than the owner, if *vaulted six feet deep;* hence the law has been repealed, and the following enacted:

### AN ACT RELATING TO CERTAIN NUISANCES.

*Be it enacted by the Senate and House of Representatives in General Court convened:*

SECTION 1. If any person shall erect or continue any house of easement or privy, arranged for the storage of excrement, within one hundred feet of any public sewer, the health officers may direct such privy to be properly connected with said sewer, if in their judgment such action is necessary to abate a nuisance or for the public good; and no privy, or pen or sty for swine, shall be erected or continued so near any street, dwelling, shop, or well of any person as in the judgment of the health officers to be a nuisance. Any person violating the provisions of this act, after due notice in writing from the health officers, shall be fined ten dollars, and a like fine for each month he shall contiuue to violate the same.

SEC. 2. This act shall take effect upon its passage, and section 11, chapter 111, of the General Laws is hereby repealed, and all other acts and parts of acts inconsistent with this act are hereby repealed.

[Approved July 25, 1889.]

The old legalized vault (six feet deep) was seldom constructed so as to be impervious, and it frequently constituted one of the worst and most dangerous nuisances about the premises. It was difficult to clean, and

the constant leakage into the surrounding soil was not only a frequent source of pollution of the family water-supply, but produced soil contamination for a considerable distance around the vault.

Again: While the law provides that sinks within one hundred feet of the public sewer shall be connected therewith, it made no provision for compelling the connection of a privy, under any circumstances, and as a consequence it has been difficult, and sometimes impossible, for health officers to cause the abatement of a disgusting privy, even when in close proximity to a public sewer. The law just enacted gives the health officers full jurisdiction in these cases, and it is to be hoped that they will everywhere use the power thus given them in an impartial manner and for the public good, for which purpose alone the law was enacted.

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## SUMMER OUTING.

The season has arrived, says Dr. C. A. Lindsley, in a circular issued by the Connecticut State Board of Health, when it is the practice with many persons to leave their homes and seek recreation and renewed vigor of health in some rural location.

The much vaunted salubrity of the country farm-house, which was so far beyond criticism a few years ago, has now, under the illuminating exposure of modern sanitary science, lost much of the charming halo of the goddess Hygeia which formerly surrounded it.

The frequent proximity of hen-roosts, cow-yards, ill kept stables and worse pig-styes, the cesspools and privy vaults, with the probable consequent contamination of the well, renders many of them places to be specially avoided. Consider the probable effect upon the health of a community if the average country farm-houses, as they are commonly found, with the above mentioned appurtenances, were placed in juxtaposition in streets, as in villages and towns. Their aggregation in close proximity would soon breed a pestilence.

There are also places not farm-houses, no less objectionable, which have gained popularity as summer resorts, and which, by reason of overcrowding and negligence of sanitary laws, are dangerous to all who frequent them. The prevalence of typhoid fever in the autumn is partly due to the exposure which summer tourists have incurred by a careless indifference to the sanitary condition of the places in which they have sojourned.

Before locating your family for their summer outing, make sure that you have chosen for them a healthful and well kept house, with good drainage, an unpolluted water-supply, and where an intelligent respect is paid to the laws of hygiene.

## THE GERM ARMY—HOW IT MAY BE ROUTED.[1]

BY A. ARNOLD CLARK, LANSING, MICH.

It is a favorite notion of modern physiologists that the human body is a sort of body politic,—a commonwealth inhabited by an immense multitude of living cells. It is almost impossible not to think of these cells as reasoning beings, as we find each struggling for its own existence but dependent on its neighbors, and working with them in the common object of building up the tissues of the body,—turning food into muscle and nerve.

In the midst of this "busy whirl of industry," these cells are constantly changing, giving birth to new cells, dying,—and the human body, like the great world we inhabit, is the constant theatre of birth and death.

These invisible cells have their invisible enemies: these enemies are popularly called germs. When these germs of disease gain an entrance to this citadel—the human body—through the air we breathe or the water we drink, they commence what Virchow calls a "struggle" with these cells, and we very properly speak of an "attack" of disease.

Vivid pictures have been drawn of this battle, how sometimes the germ is destroyed by the cell, how sometimes it conquers the cell, bursts it open, and rushes to destroy other cells. Perhaps it might be more accurate to speak of the germs breaking up the body compounds into poisons, each germ producing its own peculiar poison, its own peculiar symptoms, so that a sick man is like a city that has been sacked, plundered, and debauched by a foreign soldiery, all the healthy avenues of circulation blockaded and clogged.

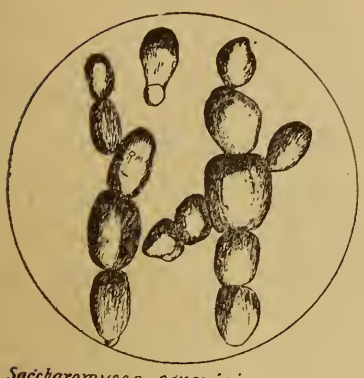
Without entering into an intricate explanation of how these germs produce disease in the human body, it is enough to say that where the vital forces of the human body are stronger than the germs, we have what is called a light attack. At times we have for a while a drawn battle, then the citadel is rebuilt from its ashes. When, on the other hand, these little soldiers of the Great Destroyer win a complete victory, the citadel is taken, the body dies, and we realize the truth of Victor Hugo's words: "It is with the infinitely little that the infinitely great conquers us."

### NON-PATHOGENIC GERMS.

Not all of these "infinitely little" germs are the enemy of man. We have to thank them for our daily bread, our vinegar, and our beer. In the accompanying diagram you will notice a picture of the yeast-plant. This is the great brewer which turns our barley into beer and our grape

[1]From the last annual report of the Michigan State Board of Health, and printed by permission.

B. termo.



Saccharomyces cerevisiæ

Putrefaction

Chains of micrococci.

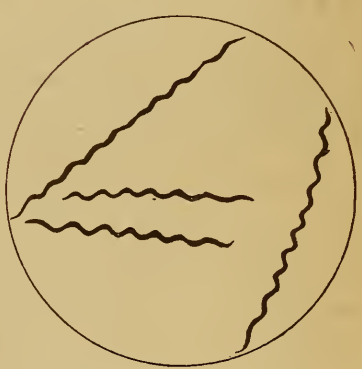
Tuberculosis.

Typhoid Fever.

Anthrax

Erysipelas.

Asiatic Cholera



Relapsing Fever.

S volutans

juice into wine. As it is impossible to tell at a distance whether an army is friendly or hostile, without a field glass, so it is necessary to magnify all of these pictures. When I tell you that the germs in these diagrams are magnified many thousand times, you will see how "enormously small" they are.

In the foregoing plate are exhibited eleven specimens of micro-organisms, which are magnified approximately, as follows:

| | | |
|---|---|---|
| Bacterium Termo,[1] about | 2000 | diameters. |
| Saccharomyces Cerevisiae (Yeast), about | 500 | " |
| Putrefaction (Bacteria)[2] about | 1200 | " |
| Chains of Micrococci,[3] about | 1400 | " |
| Tuberculosis (Bacillus), about | 1100 | " |
| Typhoid Fever (Bacillus)[2] about | 1100 | " |
| Anthrax (Bacillus),[2] about | 1400 | " |
| Erysipelas (Micrococci)[2] about | 1300 | " |
| Asiatic Cholera,[2] about | 800 | " |
| Relapsing Fever (Spirillum),[2] about | 1300 | " |
| Spirillum Volutans[1] about | 500 | " |

The ancients, unable to understand the wonderful process of fermentation, knowing quite well that it could be no mere chemical process, spoke quite reasonably of the "spirit of wine." "O thou invisible spirit of wine! if there is no other name by which I may call thee, then I will call thee,"—saccharomyces vini. When you ladies can your fruit, you know that by boiling it and keeping out the air it will not ferment. You have kept out the germs of fermentation floating in the air.

In the same way that this yeast-plant turns our grape juice into wine, this bacterium termo (see first figure in the plate) turns sweet meat into carrion, and these comma-shaped germs here (near bottom of plate) make a well man sick with Asiatic cholera.

### RAPID MULTIPLICATION OF GERMS.

But how, you ask, can so few germs as may find an entrance into your fruit on one exposure to the air, produce this dreadful havoc of fermentation? How can so few germs as are sometimes carried in a letter cause such dreadful outbreaks of disease? The answer lies in the rapid multiplication of these germs.

There are two ways in which germs reproduce. Usually one germ lengthens out and divides, producing two. Sometimes a bright oval spore or seed is formed in the germ, the germ is broken, and the new

[1] "Bacteria," by Dr. Antoine Magnin and George M. Sternberg, M. D., F. R. S, p. 40.
[2] "Microscopical Technology," Dr. Carl Friedlaender. Frontispiece.
[3] The Practitioner (London), Vol. XXXII, p. 261.

germ is formed. This spore is the egg of a new germ. Think of an organism not so large as the point of a pin laying an egg!

In the rapid multiplication of these germs there is a good chance for a play of the imagination. Cohn saw the bacillus subtilis divide every 20 minutes. Assuming that each germ divides into two only once each hour, then in two hours four will be formed, in three hours, eight; in four hours, 16; in five hours, 32; in six hours, 64; or at the close of 24 hours, at this rate, there would be seventeen million descendants of one germ. Or in five days, at this rate, the descendants of a single germ would, says Cohn, fill all the oceans of the earth, and yet they are so small that if drawn up in battle array millions of them may be crowded into a cubic inch. And though they are so light that Tyndall saw them dancing in the sunbeam, yet Cohn estimates that in five days the descendants of one germ would weigh 15,000,000 pounds. Of course germs do not multiply this fast, because they lack the food, and for other reasons, but it is only when we understand their power of rapid reproduction that we can understand those great epidemics which sometimes take great cities by storm, and even depopulate nations.

It is this rapid multiplication which proves these germs to be living matter. You can dilute strychnine and make it harmless,—it does n't reproduce. You can't dilute the yeast-plant, because it does reproduce. "A little leaven leavens the whole lump." I have n't time to mention the many experiments by which it has been proved that these germs do not develop spontaneously, that each reproduces after its own kind. When you can keep the germs of fermentation out of your fruit,

THEY DO NOT DEVELOP SPONTANEOUSLY IN THE CAN,

and the fruit does not ferment. So the germs of scarlet-fever no more arise in the air out of nothing than birds do. It was formerly thought that animals developed spontaneously. Von Helmont gave a formula for the spontaneous production of mice: "Take a dirty shirt, put into it some grains of wheat, subject the whole to heat, and at the end of a certain time there will be a transmutation of the wheat into mice." People used to think that the ooze of the Nile turned into eels. So when contagious diseases were first studied, it was claimed that they developed *de novo*. Scarlet-fever and diphtheria were attributed to dirty surroundings, and when this would n't work, to the "will of God." All this is a thing of the past. A field full of thistles is an indication that the seeds of thistles have been wafted there, and as you can't gather figs from thistles, you can't get diphtheria from anything but diphtheria. There was no scarlet-fever in this country until the germs of scarlet-fever were brought to this country 150 years ago from

a previous case, and if the germs of scarlet-fever were all destroyed to-night, scarlet-fever would be again a disease unknown. Diphtheria no more arises from the smell of decaying vegetables, than bees are generated by the smell of decaying meat, as Virgil believed. Bad smelling marshes no more give birth to typhoid fever, than to snakes and frogs, as the ancients thought. You can no more spontaneously generate a case of glanders, than you can the horse that has it.

Koch has given a series of rules which must be followed before it can be said that any given germ has caused a given disease. The germ must be found in the blood or diseased tissues of the person sick; it must be isolated and cultivated and injected in some animal producing the symptoms of the disease, and it must again be found in the diseased tissues of the animal.

This has been done in some diseases, and the germs thus studied are pictured in the accompanying diagram. Before referring to them in detail, I should say that there is almost an

INFINITE VARIETY OF GERMS.

Without attempting any scientific classification, I may say, briefly, that there are three forms most usually met with, (1) those round like a ball (called micrococci), (2) those long like a lead pencil (called bacilli), and (3) those shaped like a corkscrew (called spirilla.) In the process of division, they form chains and swarms. They shape themselves into columns, platoons, phalanxes, squares, and go through as many evolutions as our best trained military troops. They form colonies which are visible to the naked eye, though individual germs are not. You can see an army at a distance where you cannot see a soldier.

The largest of these germs is the *spirillum volutans*, which is one three-hundredths of an inch long—quite a giant.

Many of these bacilli and spirilla have flagella or cilia by which they move about. You will notice these threads in the bacterium termo and spirillum volutans in the accompanying diagram. They are as much smaller than the germ as the lion's tail is smaller than the lion.

Cohn, describing movable bacteria, said that swarming in a drop of water they looked like an ant hill. Swimming forward, they stop, and without turning around dart suddenly backward, thus forward and back as if executing the movements of a quadrille. Remaining motionless a long time, they dart suddenly forward "like an arrow," "spin around like a top," and swim like a fish. It is almost impossible not to think of them as possessed of consciousness, and having a good time. Dr. Kedzie, describing a drop of water full of bacteria, said that it looked like an "animated skating rink."

MANY DIFFERENT SPECIES LIVE TOGETHER.

A few weeks ago the Scientific American printed pictures of 71 different varieties of bacteria found in a glass of beer. About eighteen different species exist normally on the teeth. You will notice some of the bacteria usually found in the saliva in one of the figures in the accompanying diagram. Man's mouth is a regular botanical garden.

Experiments made with the books in the circulating libraries of Dresden show that where the leaves of the book are turned with the dry finger, not many germs are found on microscopical examination, but where the finger is wet many germs are found. All of these happened to be non-pathogenic germs; but if a child sick with scarlet-fever had been reading that book, the disease might have been spread in that way.

Experiments show that the coins and paper currency of Germany are covered with bacteria. In more senses than one it is "filthy lucre." Perhaps your child is carrying in its mouth the penny that has been paid out by a diphtheritic patient.

The germs of consumption have been found in the dried fly specks on the walls of rooms inhabited by consumptive patients: the flies had eaten the sputa. It is also claimed that the germs of typhoid fever have been carried in this way.

These germs find an entrance to the body through the water we drink and the air we breath. They abound in crowded rooms. It is these germs, as Tyndall showed, which enable us to see the sunbeam dancing in a darkened room. When people go into a crowded room and breathe through the open mouth, these germs find a ready entrance to the lungs. When you breathe through the nose, the germs may be stopped by the moist nasal passages. Probably a good many people might avoid catching some contagious disease by keeping their mouths shut.

The higher up you go the less the number of germs. Some one has facetiously suggested balloons as a health resort. Between one and two hundred miles out at sea very few germs are to be found, and sea breezes coming over this distance are comparatively free from germs.

Experiments show them to be more abundant in the cities of London and Paris than in the suburbs, and more abundant in the suburbs than in the country.

I have thus spoken of germs in general, because

THOSE GERMS WHICH ARE HOSTILE TO US

come to us in the same manner and under the same guise as our friends. From town to town they go like a conquering army, but unseen. They are the uninvited guests at our banquets, they sparkle in the water we

drink, greet us in the letters of our absent friends, and from the person of the pauper infect the millionaire.

We can see the different military tactics of these different germs when we reflect how these germs of erysipelas (referring to diagram) attack only the surface, the germs of cholera the intestines, the germs of scarlet-fever come from the flesh dry, those of diphtheria must be dried before they attack us, while those of typhoid fever enter the body wet, just as they come from the infected body.

Without referring at length to the action of the different germs pictured in the diagram, I may illustrate by telling a story. A year ago a man sick with typhoid fever went from a railroad construction camp to the city of Iron Mountain, Mich. In a few days he died. The dejections of this patient were not disinfected as they should have been, and the germs found their way into the water-supply of Iron Mountain, and there were 350 cases of typhoid fever and 35 deaths. The water-supply of Iron Mountain literally swarmed with this foreign army of typhoid germs. A jug of the water used by some of the families sick with the fever was sent to Prof. Vaughan of the University. He inoculated a sterilized meat preparation with this water, and this injected in dogs produced a regular run of typhoid fever the same as in man, the germs of the disease being found in the intestines after death. The existence of this germ was also proved by microscopical examination and by the potato culture. Here are 35 deaths because of neglect properly to kill the germs which came from the first case. Many other outbreaks might be cited where hundreds of cases have resulted from one.

Not all diseases have been as thoroughly studied as typhoid, and yet we know that they are caused by a specific germ which reproduces after its own kind. In this connection let me tell you another story: Two or three years ago a Pullman car conductor came in contact with the germs of small-pox in his car near Chicago, passed through on the Grand Trunk to Montreal, and was taken sick with the disease. No pains were taken to kill the germs, the ignorant inhabitants refused to vaccinate, declaring it a "wicked attempt to thwart the will of the Almighty," and in a few months over 3,000 people in Montreal died of small-pox as a result of the one case.

It was carried to different parts of the United States. Michigan, the most exposed of any state, escaped because Michigan had at her great ports inspectors of travel who vaccinated all who came through and disinfected all clothing, thus killing the germs.

Every week reports are received at the office of the state board of health, where outbreaks of diphtheria and scarlet-fever have been traced, beyond a doubt, to the germs from a previous case, from letters or

clothing. In 1874 there was a case of scarlet-fever in a house near Laingsburg. The curtains that hung in the room, the doll with which the child played, and some other articles were packed away in the garret. Five or six years later another family moved into the house and cleaned out the garret. Part of the stuff was burned, but the girl took the doll with which the sick child played, and the two boys took the pictures. In ten days the three children were sick with scarlet-fever.

These little invisible enemies of man understand military manœuvres of which the Napoleons of the world never dreamed. They find a hiding-place in our garrets and our wells, lurk in the rubbish of our cellars, linger in our hair and clothing, cling to our beds, our carpets, and our walls, are brought to us long distances by letters from our friends. More ingenious than the famous Greek horse, they steal in with the family cat and come with the flies. They congregate in poorly ventilated churches, greet us in the kisses of our friends, and from the coffin of the mother attack the cradle of the babe.

### HOW TO DESTROY THE GERMS.

At last science has begun to see that there is a nobler course than to wait for an attack of these germs and hope that they may be repulsed. The medical profession has sent along its picket line of health officers into the enemy's camp. All honor to those who stay behind to care for the wounded, but aggressive action must take the place of defensive action; prevention must take the place of cure. When we have found a germ, we must find its germicide. We must kill these germs before they attack us. It is easier. You have probably heard of the Irishman who swallowed a potato-bug, and then swallowed Paris green to kill it! That is like trying to blow up a foreign army after it has entered our gates.

What shall we do to be saved from these germs? There are many interesting questions in this connection, which I have not time to discuss. For example, it has been thought by some that these germs can be made to destroy each other. It is known that there are some germs that are not dangerous to man, which eat up germs that are dangerous. The germs of typhoid fever grow faster in water in which there are no other bacteria. Koch found that the cholera bacillus would not thrive in beer; it was destroyed by the other germs. Now some have fancied that every hostile germ has its enemy, which is innocent to man, and that sanitarians may yet make use of these friendly germs.

### VACCINATION.

Neither have I time to speak of the great hopes for vaccination in the future. The principle of military strategy here involved is, not to attack the germs, but to strengthen our own fortifications against attack. It is

well known that one attack of a disease usually fortifies our body against future attack. Whether the first army forages and devours the food necessary for the support of that kind of germ (Pasteur), or leaves behind some chemical products in which none of their kind can live (Klein and Klebs), or whether, as some claim, the cells have been educated by the first attack so that they better understand the military tactics of this hostile tribe and thus acquire vital resisting power (Sternberg), it is enough to know that a conflict with the weak members of one of these malignant tribes fortifies our bodies just the same as a conflict with the most malignant. Now we can weaken these germs, introduce them into our bodies: they are easily conquered by the cells, and we are vaccinated. The germs do n't lose their nature at all. As some one has said, the rattle-snake has not been changed into a frog: we have simply extracted some of its poison fangs.

### BOIL THE DRINKING-WATER.

Against those diseases which cause the most deaths in Michigan there is a practical remedy in the hands of every man. I told you how that dread disease, typhoid fever, which kills a thousand citizens of Michigan each year, most of those in the prime of life, is spread by the germs in the water we drink. Now what will destroy these germs? Freezing the water will not do it, but boiling the water will do it. Robert Elsmere preached a good religion when he preached the necessity of boiling all drinking-water. Nothing so easy, nothing so potent. Filtering the water will not destroy these germs. It only takes them prisoners, and when the prison is overcrowded, the filter itself becomes a distributer of germs. Boiling the water one half hour will destroy them. In view of this fact, some one has declared every death from typhoid fever to be suicide or homicide; and if there is any one thing I would emphasize to-night, and have remembered when I have done, it is this simple precaution: Boil the water; boil it when typhoid fever is prevalent; boil it at the time of year when typhoid is expected; boil it if you have any suspicions about your well; boil it any way. You will hear many precepts at this convention, some, perhaps, which you will forget; but I shall be satisfied if the enthusiasm of this convention reaches the boiling point.

The germs of these other diseases, diphtheria and scarlet-fever, enter the lungs through the air we breathe. What will destroy these germs? You may have heard of many disinfectants, but experience in this state has proved that the

### FUMES OF BURNING SULPHUR WILL DESTROY THESE GERMS.

You will find it demonstrated in the reports of the Michigan State Board of Health, that, during the last two years, hundreds of lives have

been saved by isolating those sick with diphtheria and scarlet-fever, and then, after death or recovery, burning sulphur to destroy the army of germs hiding in the house. Sulphur has long been a good orthodox disinfectant for the next world; we now know that it destroys the little devils in this.

It was an old idea that disease was caused by the possession of devils, and that the way to cure disease was to cast these evil spirits out. Our forefathers used to prick the affected part in the hopes of thus letting the evil spirit out, in much the same way that the Indian medicine-men now gather about a patient, one playing the tom-tom to scare the devil out, another jumping on the patient's stomach to stamp the devil out. If the devil does n't kill the patient, the doctor usually does. Now disease is caused by the possession of evil spirits,—devils; but, strange as it may sound, devils that can't live where sulphur is burning.

Such is the foe with which we have to deal. This army of disease germs is the "enemy at our gates." We spend thousands of dollars to maintain a large standing army to protect us against those foreign foes with whom we ought to be at peace. We pay our health officers about enough to keep them in sulphur and boiled water. But of our Michigan boys who enlisted in the Union army during the late war, disease carried off four times as many as the fields of battle and the wounds of battle. In the Crimean war 20,000 French soldiers died in battle, 75,000 died of disease. Those great plagues of the Middle Ages, which swept over Europe like the barbarous Huns and Tartars, caused more deaths in a single year than all the wars of the century.

Like the human race, disease seems to have its home in the East, and take its march of empire westward. Like an invading army, small-pox came to Germany in 1493; to America in 1527. The cholera germs first came here in 1832, and then died out—something like the French soldiers who were unable to endure the climate of Algiers. In India these germs do not die, and every year we fear an invasion. If all the forces of civilization could be gathered here, if once we could kill all the cholera germs in Calcutta, why should n't the future Crecy classify this among the fifteen decisive battles of history?

Too often we turn over our mortality statistics and read in the newspapers of so many deaths in such a place, with no other emotion than we experience while reading the market price of our products. But if, as Byron said, it is a

> "Dreadful thing to see the human soul take wing—
> In any form, or any way,"

it is sad to know that over one fourth of all the deaths which occur in this state are from diseases which we know enough to prevent, but do not.

Not long ago, in one of your neighboring towns, there were six deaths from diphtheria in one family in one week, every one of which might have been prevented had every officer done his duty.

On the cars to this convention, whose object is to save human life, I thought of Dickens's beautiful description of the engine which carried away Mr. Dombey after the death of little Paul, and how to him that great iron monster, "defiant of all paths and dragging behind it human beings of all ages and classes, seemed like the type of the triumphant monster Death."

"Away with a shriek and a roar and a rattle—'mid objects close at hand and almost in the grasp, yet ever flying from the traveller," "with a shrill yell of exultation, pausing for a minute where a crowd of faces are that in a minute more are not." "Away with a shriek and a roar and a rattle, leaving no trace behind but dust and vapor—like as in the track of the remorseless monster Death!" "Away, and still away—onward and onward ever, glimpses of cottage homes, mansions and rich estates that look deserted now as they are left behind, and what else are there but such glimpses in the track of the indomitable monster Death!"

The duty of the state to prevent disease and death! Think of those who, in the prime of life, are ground beneath the iron wheel of this "remorseless monster!" Think of the young, the innocent, who are made wrecks for life! Think of a Proctor in the full brightness of his intellectual manhood, cut down by a disease which should be one of the accidents of civilization—and then say, if you will, that the saving of human life is not the first and the highest duty of the state.

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## PUSH THE SANITARY PUBLICATIONS.

The chief obstacle we have to contend with is ignorance. A knowledge and appreciation of sanitary science, and what can be accomplished by its application, are entirely lacking among the people. They exercise a remarkable zeal in avoiding things which cause sudden death, but seem to have no uneasiness concerning anything which threatens their lives or undermines their health by slow degrees. The American people consume twenty-two million dollars' worth of patent medicine annually, besides the enormous sum they expend in doctors' bills and caring for the sick, but when the city of Chicago assessed 20 cents per capita for public health, it was met with violent opposition and denounced as an extravagant expenditure.—*Simon P. Wise, M. D., President Ohio State Board of Health.*

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We only get out of every endeavor a worth in proportion to that we put into it.

# DOMESTIC VARIETIES.

### Babies Beginning to Walk.

The age at which babies begin the wide based waddle, which they believe to represent walking, varies some. It is not an unheard of thing for them to struggle to their feet as early as eight months old. Nor is it unusual to prolong the creeping stage far beyond the twelve months age. When a baby insists on walking before ten or eleven months, it is a sign that it is a strong and active child. When it delays until eighteen months, the reverse is indicated: there is surely some weakness that prevents it. Notwithstanding these facts, it is a mistake to "teach" a child to walk. Whatever the Darwinian theory about how we came to assume the upright position, our children are "to the manner born," and will take it as soon as nature lets them. One thing only is a legitimate help, and that is putting the child on the floor as soon as possible for it to roll and kick for itself. The floor should be thoroughly protected from draughts, and a warm rug or puff placed under the baby. Then give him his fling, in company with a few rubber toys, and it will soon be found that the rug is too small for him. He becomes more enterprising, and manages to get off by rolling, "hitching," and scrambling.

This sort of exercise is perfectly natural to a healthy child, and helps to develop the soft legs and feet, and to digest and assimilate food. Besides that, the moral effect is to give the child a sort of self-reliance. Those who "hold the baby" too long cheat him of just so much of his little experience. Let him scramble and wallow, regardless of mopping up the dust or getting grimy; or, if you cannot bear to see him dirty, make him a "creeper" of dark stuff, to be slipped off and on at pleasure. Soon he reaches up, as all growing things do, or should, and finds something above him to grasp; then pulls himself up, and stands on his feet. The next stage is walking, by holding on to chairs, the wall, skirts of dresses, and other inanimate friends. After that, in time, he walks. Babies come to all this as naturally as they cry when hungry, but should never be forced or coaxed for the amusement of their elders.—*Herald of Health.*

"Put on some more clothes, Mandy!" shrieked the elderly aunt at the watering-place. "Folks'll see you!" she added, horror-struck.

"Aunt Julia," replied Amanda, as she went out among the waves with all the trustful innocence of a Texas statesman, "what are we here for?"—*Chicago Tribune.*

### The Youthful Craving for Food an Indication of Health.

The relation between appetite and digestion is in general a fairly definite one. At the same time it must be allowed that this rule is largely modified by exceptions. Many persons are subject to morbid craving to eat, which food cannot satisfy; and most of us know something of the appetite of idleness, or of habit, or of nervous disturbance, the latter bearing a suggestive likeness to the desire for stimulants, or the fragrant weed taken to relieve mental depression. Apart from such considerations, however, there are obvious variations in the degree of normal appetite in different individuals and at different periods of life. The man of sedentary habits cannot expect to compete with one who spends a life of movement out of doors. The man and the woman differ; so do the younger and the elder, and, in a notable degree, the boy and the man. The vigorous appetite of boyhood is virtually a synonym of health. A rate of daily consumption which would in most men be gluttony, is in young growing lads almost too common to attract notice. The explanation is not difficult when we take into account two chief conditions of existence at this age—the growth going on in every organ and tissue, and a very liberal allowance of active bodily exertion. Under the circumstances a sparing rule of diet would be unnatural and injurious. There is, of course, a limit even in childhood, which it is trite to say is often and wrongly exceeded. There is no age, however, at which this form of excess is pardonable. Whatever the surplus of food taken, most of the self-indulgent youngsters have been provided by nature with a power of disposal which may largely be relied upon to correct its consequences. Measures of restriction are more wise when they are used to regulate rather the wholesomeness of food and the times of eating, than the absolute quantity consumed. It is at a later stage that we may require to apply strictly the familiar rule that one should eat to live, and not live to eat. A degree of apparent Philistinism in the matter of wholesome food and drink is in the young both usual and judicious.

—*American Analyst.*

THE GLASTONBURY ICE CREAM POISONING.—The Connecticut State Board of Health have investigated the case, and find it due to tyrotoxicon in the cream. Among the fatal prior conditions that existed, it is found that a portion of the milk from which the ice cream was made was placed in a covered pail as it was taken from the cow and left standing in a warm place for two or three hours. Again: After the custard was made, it was kept five hours before freezing, thus affording an opportunity for the whole quantity to become thoroughly charged with tyrotoxicon.—*Sanitary Era.*

### White Crape and Flowers.

The other day the Rambler was pleased to notice an innovation upon a long established, and to his mind senseless, custom. At the door of a residence within which rested all that was mortal of a lovely young woman, there was suspended white crape and flowers, in place of the usual ugly black crape. Sensible and most happy innovation! It is but a beginning, to be sure; but the Rambler dares to hope it is the beginning of the end of the sombre black, which from time immemorial has marked the presence of death. Who can tell why? From a child the Rambler has looked with abhorrence upon all the paraphernalia of a funeral, and the unsightly and meaningless mourning apparel worn by the bereaved. Why should this color be arbitrarily the badge of mourning? If there is anything at all to the religion of Christ; if there is any foundation whatever for our faith in His promises; if we have any grounds for believing in immortality and a happier world than this, where our loved ones who have left us are gathered,—then the dismal emblems of mourning with which Christian people surround themselves upon the death of a relative are worse than senseless. They give the lie to our professions and beliefs, and mock our hopes of a blessed hereafter. What is more hideous than the modern hearse, black as night inside and out, black drapery and black trimmings and nettings for the horses? What does this darkness signify? As black is defined as the absence of all color, can it mean anything else than the absence of all hope, all consolation, the very blankness of a despairing heart? The fact is, the custom is nothing but a barbarous relic of days long agone, and serves but to add an unnecessary horror and desolation to the sorrow of parting for a time with those we love. It is time an intelligent Christian people grew away from such a custom, and adopted something more in keeping with its hopes and beliefs.—*Manchester Union.*

SUNSHINE AS A MEDICINE.—Sleepless people—and there are many in America—should court the sun. The very worst soporific is laudanum; the very best is sunshine. Therefore it is very plain that poor sleepers should pass as many hours of the day in the sunshine, and as few as possible in the shade. Many women are martyrs, and do not know it. They shut the sunshine out of their houses and their hearts; they wear veils; they carry parasols; they do all that is possible to keep off the subtlest and yet the most potent influence which is intended to give them strength and beauty and cheerfulness. Is it not time to change all this, to get roses and color in our pale cheeks, strength in our weak souls? The women of America are pale and delicate. They may be blooming and strong, and the sunlight will be a potent influence in this transformation.—*Evening Telegraph.*

## Insomnia.

### THE NEED OF VARIETY IN DOMESTIC LIFE.

Are you afflicted with insomnia? Perhaps you have too much time for sleep. Perhaps you depend too much on sleep for rest and recuperation. For sleep is not the sole rest of used-up nerves. Sociability, congeniality, and the enjoyment of good company rest the body quite as much as sleep. The dreary monotony of life in many a household, involving this tumbling into bed with the mechanical regularity of a machine at nine or ten o'clock in the evening, does not always rest weary bodies. "Early to bed and early to rise" does not always make a man healthy, wealthy, or wise. Numbers of organizations are only capable of five or six hours' sleep at a time, and their early lying down to rest is often succeeded by an early waking up and a consequent restless tossing for hours preceding daybreak. The practicers of punctuality are often surprised, after breaking their own cast-iron rules, and passing two or three later hours of mirth and jollity past their usual bed-time, to find themselves even more refreshed in the morning than usual. The relaxation or sociability has rested them more than would sleep or an attempt to sleep. But these are conditions not so easily reached in the average family. In fashionable life we have a formal, exhausting, and mechanical evening, of more or less dissipation. On the other hand, the evenings of great numbers of families are monotonously humdrum. They involve the assemblage of the same people, the same surroundings, the same paterfamilias yawning over his paper, and the same querulous mamma overladen with family cares. Fresh people with fresh thought, fresh atmosphere, anything to stir up and agitate the pool of domestic stagnation, are sadly needed and sadly scarce. There needs to be, also, a constant succession of such fresh people to bring about these results. The world is full of men and women, and in a better regulated life it would be the business after the day's work was done to entertain each other, and give each other fresh life. As it is now, hundreds if not thousands of our households are little better than cells for the incarceration of each family. Thousands are thus worn out prematurely from utter lack of domestic recreation. There might be written over the graves of hundreds of thousands, "Bored to death by the stagnation of domestic life."—*The Christian at Work.*

Do not sleep, or, when working, breathe with the mouth open. The nose filters out air impurities, which would otherwise reach the lungs, and regulates the temperature of the air when it might else be very irritating. If you cannot breathe through the nose, there must be something wrong with it which should be attended to.—*Herald of Health.*

### A Bungling Chemist's Discovery.

In the course of conversation at Cornell University, Edward Atkinson, the Boston economist, stated that a New England genius has recently discovered a cheap method of dissolving zinc by combining it with hydrogen, and producing a solution called zinc-water. This liquid, if applied to certain woods, notably, white wood, makes it absolutely fire-proof and at a low cost. Mr. Atkinson regards this discovery as one of the most important of the age, and one that will surely revolutionize fire insurance, as well as immensely decrease the loss by fire. The invention is kept secret for the present. Only one foreigner—Sir Lyon Playfair, the English scientist—knows of it. He corroborates all that is claimed for the invention, and says that the inventor is a bungling chemist, but that he has a faculty of blundering into the choicest secrets in nature's laboratory. As soon as patents are perfected and capital interested, zinc-water will become an article of commerce.—*Exchange.*

Pure butter, when melted without stirring, produces a pure, limpid, golden oil, retaining the butter flavor. Oleomargarine when melted smells like tallow, and a scum rises to the top. Butterine, a mixture of dairy butter and fats, when melted will exhibit the butter-oil on top; when this is poured off, the fats will be found at the bottom, whitish in color and disagreeable in smell. These are simple tests.—*Ex.*

"I'm told," said George to Mabel, "that tyrotoxicon has been found in remarkable abundance in ice cream this season."

"Does it hurt one much?" she asked apprehensively.

"Oh! I guess it poisons you," he replied.

"Is it alive?"

"Ye—yes; I think so."

"Oh, George, how I would like to see one!"—*Merchant Traveller.*

Pat (in gaping wonder at the letters on a Hebrew butcher's sign)—"Here, Mike, 't is yerself has the foine larnin'. Can yez read that now?"

Mike—"I cannot; but if I had me flute here I belave I cud play it."

Old Lady—"I hope, my boy, you don't sell papers on Sunday?"

Small newsboy (sadly)—"No, mum; I ain't big enough ter carry a Sunday edition yet."

A merry heart doeth good like medicine, and merriment at meals is better than pepsin for the digestion.

## CONTAGIOUS AND INFECTIOUS DISEASES IN NEW HAMPSHIRE.

The following contagious and infectious diseases were reported for the month of July:

Diphtheria: Nashua 8 cases. This is just one half the number reported from that city for the month of June. Total number reported since the first of May, 34;—Manchester 9, Claremont 8, Rochester 6, Belmont 2, Milford 2, and Concord, Stratham, North Hampton, Greenland, Berlin, and Goffstown one case each.

Scarlet-fever: Manchester, 75 cases, making 149 cases reported since May 18. In the report rendered by the board of health of Manchester for July the secretary says: "We have placarded the houses in which the disease existed, distributed the pamphlets published by the state board of health, and have done what we could to secure isolation and disinfection. But the scarlet-fever is so mild that some have no doctor and are not confined to the house: the disease is probably spread largely by such persons. Only two deaths have been reported from the disease thus far." Goffstown 3, Concord 4, and Boscawen, Belmont, and Bridgewater one case each.

Typhoid fever: Boscawen, Concord, and Belmont, each 2 cases, and Salem, Pittsfield, and Goffstown one case each.

One case of measles was reported from Manchester.

Dysenteric troubles were reported from several localities.

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## PUBLICATIONS RECEIVED.

*The Quarterly Journal of Inebriety.* Published under the auspices of the American Association for the Study and Cure of Inebriates. T. D. Crothers, M. D., editor, Hartford, Conn. Monthly, $2 per year. An able and well edited journal.

*Nashua Daily Gazette.* A live daily, having a large circulation in Southern New Hampshire. Published by the Gazette Press Co., Nashua, at $6 per year.

*The Lancaster Gazette.* Published weekly at $1 a year. Devoted to the news of Coös county.

*Kearsarge Independent and Times*, Warner. Weekly, at $1 a year.

*The Rochester Leader*, Rochester, N. H. Weekly, $1.25 per year.

*Berlin Independent*, Berlin, N. H. Devoted to the interests of Berlin and Coös county. Weekly, $1 per year.

*Littleton Journal*, Littleton, N. H. J. D. Bridge, editor and proprietor. Weekly, $1.25 per year.

THE

# SANITARY VOLUNTEER

VOL. 1. SEPTEMBER, 1889. NO. 9.

## SANITARY AND OTHER NOTES.

We have received a great many letters endorsing the SANITARY VOLUNTEER. Some have written that a single article in it was worth more than the subscription price. It ought to go into every family circle in the state. Get your neighbors to subscribe for it. Fifty cents a year, or a club of five for $2.

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This is the season of the year when typhoid fever prevails. Look out for the water-supply, through which this disease is generally spread. Shallow wells are to be looked upon with great suspicion, and unless they are known to be beyond the reach of sources of pollution, like privies, cesspools, sink-drains, farm-yards, etc., they should be entirely discarded from use in the family.

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Lovers of the weed may find some solace in the fact that James Tunny, who died in Boston a few days since at the age of 101 years and 11 months, was a steady smoker from boyhood till the day of his death. He was born in Ballyshannon, Donegal county, Ireland, in September, 1787, was engaged in several wars, and enlisted at the breaking out of the Rebellion at the age of 74, but failed to pass muster on account of his age. He lived an out-door life, engaged mostly in farming, and had a vigorous constitution.

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The flannel shirt is more popular this season than ever before, and its comfort is in severe contrast with shirt front and collars made as stiff as sheet-iron with starch. Nevertheless it has one execrable peculiarity, concerning which a writer of the *Rochester Herald* says,— "When it is brought home, the proud husband and father dons it and goes forth to defy the sweltering heat of a July day. The next week it is washed, and then it is just about the size for the twelve-year-old son.

Another week rolls round, and it is just a fit for the baby. The fourth week it descends to Betsey's doll, and the fifth week it vanishes altogether—disappears mysteriously. It was seen to go into the washtub, but that was the last of it."

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A correspondent who is a health officer of one of the towns of this state, asks our opinion regarding the relative value of "sulphur candles," "sulphur bricks," "sulphur pastiles," etc., compared with common sulphur, for the purpose of disinfection. The only advantages claimed for these preparations are convenience in handling and the readiness with which they may be ignited. They contain about 70 per cent. of sulphur, the other 30 per cent. being composed of charcoal and other matters to insure combustion. So far as fumigation is concerned they are no better, if as good, as common sulphur; the latter is much cheaper, and there is no difficulty in securing its combustion, with the aid of charcoal or a teaspoonful of alcohol to insure thorough ignition. Ordinary sulphur or roll brimstone has been successfully used for many years as a disinfectant.

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Those living in a locality in which the mosquitoes are troublesome, says the *Annals of Hygiene*, may make a trial of the following recipe for expelling these pests from the house: Take a piece of gum camphor, in size about the third of a hen's egg, and slowly evaporate it by holding it in a shovel or tin vessel over a lamp, taking care that it does not ignite. The smoke will soon fill the room and expel the mosquitoes, and it is said they will not return, even though the windows should be left open all night.

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Notwithstanding we have before notified the public that the state board of health cannot undertake to analyze samples of water free of expense, parties still continue to send specimens for examination to the board. The board has no fund at its disposal for this purpose, and all samples hereafter sent for analysis will be examined at the expense of those sending. Under a law passed in 1887, certain suspicious waters may be examined at the expense of the town, and the town boards of health are authorized to cause such work to be done when they deem it for the public good. The state board has made an arrangement with Prof. E. R. Angell, of Derry, N. H., to make a complete sanitary analysis of water for three dollars per sample, and any individual can avail himself of this opportunity, which is considerably lower than the usual rates.

The authorities of Manchester and Auburn have decided to protect the water of Lake Massabesic from pollution. There are in Auburn some saw-mills, the sawdust from which goes into the lake, and has accumulated on the bank. There are also along the shores several cottages and summer-houses. It has been decided to abate the sawdust nuisance, and to order every owner of a stable or out-house within seventy-five feet of the lake, to move it back. This locality has been increasing as a summer resort quite largely of late, and the determined action now taken is timely and advisable, and greatly to the satisfaction of the water-takers at Manchester.

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Dr. Monroe says, in the *Medical Summary*, that heliotrope water will effectually destroy the odor of iodoform if applied after that drug has been used, and that it will also remove the offensive effects from the hands after having been brought in contact with it. If such a statement is true, we heartily commend the fact to such physicians as always carry the odor of this offensive drug with them. We would furthur suggest to the person who uses iodoform, that he either stay out of public assemblies, cars, and other places where people congregate, or else employ some deoderant that shall effectually destroy the disgusting fragrance of this useful remedy.

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Quite extensive sewer building is going on at Nashua. A sewer is being constructed along Amherst street which will cost over $20,000 when completed. The workmen were obliged to cut through a ledge about 100 feet in length, with a depth of from ten to fifteen feet. The sewer has been long needed, and will be, when completed, a great sanitary improvement for that part of the city. Sewers are also proposed for Harbor avenue, South Pine, Chandler, and Ash streets.

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An indurated wood fibre bath-tub is one of the sanitary improvements of the day. It is so light that a full sized one can be carried in one hand, and its durability is greater than the ordinary bath-tub. It has no seams, does not corrode, and has a permanently smooth surface which stands boiling hot water as well as porcelain. Slop-pails, dish-pans, sinks, wash-tubs, etc., are now made from indurated wood fibre. The slop-pail made of this material has great sanitary value, since it has no absorbing surface like the ordinary wooden pail, and hence is always free from odor after being rinsed or washed. It has no roughened surface for the harboring of filth or the germs of disease, as has the old wooden pail.

## THE LARD QUESTION.

The lard question has for two successive sessions been brought before our legislature, thoroughly discussed, and dropped without the enactment of a single section relating to the matter; this, too, in the face of the fact, which no party attempted to deny, that much of the lard sold to the public for family use is adulterated. The question arises, Why, then, did not our law-makers prohibit the sale of adulterated lard? The adulteration of many other articles of food, or, rather, the sale of such articles, is excluded under heavy penalties. Why should an exception be made in favor of lard? The answer is simply this: It was conclusively shown that the lard in our markets, adulterated with beef stearine and cotton-seed oil, is as healthful, and decidedly more cleanly, than the commercial lard. There is no doubt but that most people would choose the pure leaf lard in preference to any other for domestic purposes, but that can only be assured to families who buy the leaf and try out their own lard, or obtain the same from some trustworthy local dealer who renders the lard himself. To the great majority of people, especially in our cities, that is entirely out of the question, and the products of the open market have to be used.

The testimony which was presented to the committee, and which may also be found in the hearing before congress on this subject, shows that the lard put upon the market by some of the largest firms in the country was made from all parts of the hog—intestines, head, feet, scraps of all kinds; in fact, every part of the hog that possessed fat was thrown into the rendering tank. The intestines were simply cut open and just rinsed, not thoroughly washed, before being thrown into the tank with the other parts. This dirty, filthy manner of rendering lard, which is to-day for sale in all our markets, was shown in the testimony before congress.

It was likewise shown that certain manufacturers were taking commercial lard and refining it so as to take out a large proportion of impurities, then adding about fifteen per cent. of beef fat (stearine) and about twenty per cent. of cotton-seed oil, and selling this compound in our markets as lard compound, the stearine and oil being combined in such proportions as to render the preparation stiff enough to stand up in warm weather. The evidence showed that these adulterants were both healthful and cleanly articles of food: hence the inference followed that this so called lard compound is a better and more healthful product than the commercial lard. This is clearly the reason why our legislature did not enact a law prohibiting the sale of such a compound. This seems to be one of the few cases in which the adulterated article is the best and most healthful.

## STAMPING OUT CONTAGIOUS DISEASES AMONG DOMESTIC ANIMALS.

The last legislature enacted a very important measure for the restriction and prevention of contagious diseases among domestic animals, which we herewith give in full. We would suggest to town and city authorities that this measure is one that may be made to accomplish a vast deal of good, or it may be rendered so obnoxious as to cause its repeal at the next session of the legislature. The good which it will accomplish both for the health and stock-raising interests of the state will depend almost entirely upon the wisdom of the several town and city authorities. Other states have passed laws which, at least in part, reimburse the owner of an infected animal for his loss; but under this law the owner is to be fully reimbursed upon the award of a disinterested committee. There are two ways in which there is danger that the law may be rendered odious: First. The attempts of unprincipled parties to make it appear that worthless creatures in their possession are suffering from a contagious disease, and in this manner seek an opportunity to get a little cash out of valueless animals. Second. From the difficulty which may be experienced in many places in obtaining a correct diagnosis of the disease with which the animals appear to be suffering. This we regard as the more serious question of the two.

It is a lamentable fact that thoroughly educated veterinary surgeons are very scarce in this state, while it is a well known fact that many persons who advertise themselves as veterinary surgeons are the veriest quacks so far as that profession is concerned, and are not competent to make a clear diagnosis in many diseases; especially is this true of glanders and tuberculosis in the early stage of the disease. The selectmen of towns and the mayor and aldermen of cities should in no instance take the opinion of a veterinarian other than one who has been regularly educated in the profession and graduated from some regular veterinary college. The following is the law:

SECTION 1. The mayor and aldermen of cities and the selectmen of towns, in case of the existence in this state of the disease called glanders among horses, or any other contagious or infectious disease among domestic animals, shall cause the animals in their respective cities and towns which are infected, or which have been exposed to infection, to be secured or collected in some suitable place or places within their cities or towns, and kept isolated; and when taken from the possession of their owners, one fifth of the expense of their maintenance shall be paid by the city or town wherein the animal is kept, and four fifths by the state; such isolation to continue so long as the existence of such disease or other circumstances may render it necessary.

SEC. 2. The mayor and aldermen and selectmen respectively, when any such animal is adjudged by a veterinary surgeon by then selected to be

infected with any contagious or infectious disease, may, in their discretion, order such diseased animal to be forthwith killed and buried at the expense of such city or town. No payment shall be made for any horse slaughtered under this act that was not owned in this state at least three months before the disease was detected.

SEC. 3. They may cause all such animals so ordered killed to be appraised by a committee of three competent and disinterested men under oath, at the value thereof at the time of the appraisement, and the amount of the appraisement shall be paid as provided in section 1. In case the owner of the animal shall be aggrieved by the amount of such appraisement, he may, by petition, appeal to the trial term of the supreme court next holden in and for the county in which said city or town is located within thirty days after said committee shall notify him of their award, and shall serve notice of such appeal upon said city or town at least fourteen days before the return day of said term.

SEC. 4. Said owner shall enter said petition in said court, and shall be entitled therein to a trial as to the value of said horse at the time of said appraisement by the court or jury, according to the laws of this state. Said owner shall not be entitled to any costs in said trial, unless he shall be awarded a greater sum than the amount awarded him by said committee.

SEC. 5. A city or town whose officers neglect or refuse to carry into effect the provisions of this act shall be liable to a fine of not exceeding five hundred dollars.

SEC. 6. This act shall take effect upon its passage.

Approved August 16, 1889.

The diseases which should be included under the operation of this law are probably very few. Glanders in horses is specifically mentioned in the act, but beyond that we would suggest that the one of greatest importance both to the public and to stock-raisers is tuberculosis in cattle. We believe that every case of this disease found in the state should be destroyed. There is no question about the infectious nature of the disease, and the fact that through tuberculous milk it is often communicated to the human race. In addition to the two diseases named, malignant anthrax in cattle, splenic fever and foot rot in sheep, the swine plague, and perhaps some other diseases may be included. The law is limited only by the words "infectious and contagious:" hence it is a very broad one, and may be construed to cover many diseases. For this reason, unless it is executed in a very careful, systematic, scientific, and painstaking manner, it will be brought into discredit in a very short time. On the other hand, if the law is enforced with fidelity in every particular, the amount of good that it will accomplish cannot in any degree be measured by the amount of money required to maintain it in successful operation. No animals should be slaughtered under the provisions of this act until their full history is known and the character of the disease is settled beyond a doubt. And to this end we would reiterate the remark, that great responsibility in the execution of this law rests upon our town and city authorities.

## THE HOG STILL AHEAD.

An exhaustive work entitled "Hog Cholera: Its History, Nature, and Treatment, as determined by the Inquiries and Investigations of the Bureau of Animal Industry," published this year by the United States government, reflects great credit upon that bureau, and especially upon Dr. D. E. Salmon, its efficient chief, and his able assistants and co-workers. In fact, the work may be regarded as complete and final so far as this disease is concerned. We cannot see how this subject could have been conducted with more scientific ability, or presented with greater completeness. It must rank as the highest authority extant upon the subject.

When we examine this incomparable work, we can but lament that the general government does not place her citizens at least upon a level with the hog. The government looks well after the hog that is sick with the cholera, and the cow that is ill with pleuro-pneumonia, but extends no protective or helping hand to the thousands and tens of thousands of human beings that die yearly in the United States from preventable diseases. It provides for a skilled department, which is a credit to our country, to make scientific investigations into the causes of death among domestic animals, but furnishes to the sixty millions of our people only the imaginary protection of a bureau of the treasury department, designed wholly for another purpose—the care of sick sailors—and which, as now constituted, is totally lacking in the requirements necessary to scientifically investigate the etiology of disease, and is inadequate to protect our people from the most serious and fatal diseases belonging to the preventable class.

It is a disgrace to our country, and a menace to its welfare, that we have no national health department of any practical service to the public. All we ask in this direction to-day is, that the government extend as great a protection to the human race as it does to the hog and the cow. Let the government devote at least as much scientific investigation to the cause and prevention of that terribly fatal disease pulmonary consumption as it does to hog cholera. May the time soon come when we may be able to say that our nation places as much value upon a man as upon a hog. At present the hog is ahead.

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## VETERINARY SURGEONS.

Regarding the importance of securing the opinion of a skilled veterinary surgeon before destroying any diseased animal, under the provision of the law elsewhere given in this issue, we propose to obtain and publish, for the benefit of town and city authorities, a complete list of

the regularly educated veterinary surgeons residing in New Hampshire. Every veterinarian in the state who is a graduate of a reputable veterinary college is requested to send us his name, date of graduation, and name of college. We propose to obtain such a list, and publish it for the benefit of the stock-raising interests and for the good of the public. A law so important as the one alluded to, and so capable of doing incalculable good, must not be allowed to fall into discredit through any abuse that can be foreseen and avoided.

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## THE DIET OF YOUNG CHILDREN.

The subject of infant feeding has already been thoroughly discussed. The dietetics of adult life have also received due attention. There is, however, one period of growth—a sort of intermediate stage—to which the ordinary rules of diet are not at all applicable. Between the ages of two and six years, for example, little provision has been made for the proper nutrition of children. Parents are inclined to trust to their own judgment. The result is, many and diverse systems of feeding, and likewise many affections of the digestive organs, which are not only in themselves dangerous and sometimes fatal, but which, by impairing the integrity of important structures, invite the approach of disease.

One of the most popular fallacies is, that a child who has acquired its first teeth should at once discard the ordinary diet of milk and take its meals with the family. In the opinion of some of the more misguided, a child who can perform this feat with impunity is destined to achieve greatness. The experience of the physician shows, however, that he often dies before doing so. The digestive organs of the child and the adult differ in many important particulars. Their anatomical structure, the character and amount of the various digestive fluids, together with many other conditions peculiar to early life, all state in terms most positive that certain articles of food cannot be taken with impunity, and that the dietary of one period must be made wholly distinct from that of the other. Ordinarily the transition from a liquid diet to one containing a large and varied assortment is much too sudden, and at certain seasons of the year a frequent source of danger.

Up to the age of three years the diet should consist of milk, thin broths, and strained vegetable soups, with a little old bread; the various prepared foods when occasion demands. Beyond this it is seldom expedient to venture. Between the ages of three and six the allowance may be more liberal. While complete instructions cannot be here given, it may be stated that in this particular the needs of the young child are very similar to those of the adult dyspeptic; hence the following articles

of food should be religiously avoided: Tea, coffee, chocolate, corn bread, hot bread and biscuit, meats and fish fried, fritters and fried cakes, sweet potatoes, pork, liver, lobster, sausage, corned beef, salted fish, all made dishes, pie and pastry, cake, preserves, nuts, pineapples, bananas. A few plain articles of food, cooked simply, and seasoned with a little parental judgment, do wonders as regards physical growth and the prevention of disease.

A perverted taste as regards diet is most easily acquired, but afterwards most difficult to overcome. Parents should therefore see to it that their children be early accustomed to a certain limited dietary, and that they should have no knowledge whatever of articles outside of it.

The use of sweetmeats is a striking illustration of parental negligence. No one article of food has a more injurious effect upon the digestive organs, and indirectly upon the general health, than candy. It possesses scarcely a redeeming feature, and may be classed with the various articles of luxury which maintain their popularity by their appeal to the senses. There is scarcely an exception to the rule that a child who indulges extensively in the use of this article is deficient in nervous or muscular vigor, or is subject to disorders of the digestive organs. The amount of sugar required for the growth and repair of the system is comparatively small, and is abundantly supplied by the common articles of food, which almost invariably contain it. Additional quantities are not utilized. Sugar is exceedingly prone to undergo fermentation, and by this process are produced or set free some of the so called bacteria or germs of disease; or the chemical action taking place in the stomach may result in the formation of poisonous compounds which have a definite and decided action. In infants, cholera infantum may follow; in older children, the various acute and chronic digestive disturbances already referred to. The fact is self-evident that the constant ingestion of sugars impairs the appetite; hence results a sort of starvation of the osseous, nervous, and muscular systems from the deficient supply of their proper nutritive material.

The practice among children of eating at short intervals is to a great extent a habit. This is shown by the fact that in most cases plain, wholesome food is not, as a rule, demanded, but rather fruit, candy, cake, and those articles which are especially agreeable to the palate. It should be known that the digestive, in common with other organs, are incapable of continuous work, and when constantly overtaxed are almost certain to succumb.

While young children require food at somewhat shorter intervals than adults, yet the difference is not so great as many imagine. The appetite of the child is as capable of education as is any mental faculty, and con-

sequently may be perfected or perverted. His future health, and indeed usefulness, depend in no small degree upon the manner in which the laws of dietetics and hygiene have been observed. Hence it behooves parents to consider the latter most carefully, and to enforce them most rigidly.

J. J. BERRY, M. D.

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## PREVENTION OF TYPHOID FEVER.

Typhoid fever is everywhere recognized by sanitarians as a preventable disease, and much has been written to impress the public mind with this fact. The State Board of Health of Kentucky have just issued a circular upon this subject, which contains so much truth in a few words that we give it in full. It is as applicable to New Hampshire as to Kentucky.

This board desires to call the earnest attention of our health authorities and people to the gradually increasing prevalence of and mortality from typhoid fever, and to the growing importance of a constant resort to the methods which modern scientific researches have suggested for the prevention of this disease.

These preventive measures are of the more importance to the state because directed against a disease especially prevalent and fatal amongst persons in the prime of life, who contribute most to the public wealth and prosperity. Considered purely as an economic problem,—the feature of it probably least thought of by most people,—the importance of this disease can scarcely be over-estimated. Statistics show that ten persons are sick for every one that dies of this disease; and to say nothing of the cash value to the state of those who die every year—and it is conceded that the state has no more valuable property than that represented in its vigorous population—the loss of time and labor, and the necessary cost incurred in attention to those who finally recover, make an annual tax upon our people of startling proportions.

Typhoid fever is probably the most preventable of all diseases, not even excepting small-pox. It is now known that, like cholera and dysentery, the germ or specific cause of this disease is contained in the discharges from the bowels of those sick of it, and that while other methods of introducing the poison into the system are possible, it most generally gains entrance through the medium of an infected water-supply—usually the use of well-water polluted by fecal matter. This may be direct, from drinking such water, or indirect, as by using milk or other articles of food or drink from cans or vessels washed in it. Ice from an infected source is also dangerous, since it has been proven that freezing does not destroy the infective principle.

While water from all sources of supply is liable to contamination, well-water is especially so, whether located in city, town, summer watering-place, or country. Thus, out of three hundred and fourteen cases occurring in Louisville in 1884, two hundred and ninety-eight of the persons used well-water habitually, and some of the other sixteen did so occasionally. In the now famous epidemic at Plymouth, Pennsylvania, involving the sickness of 1,104 persons, the death of 114, and an actual outlay in money of $67,100.17, the outbreak was traced to the use of water polluted by the fecal discharges of one imported case of the disease. Facts no less convincing might be multiplied indefinitely if space permitted. In a smaller way they are common in the experience of most physicians in active practice.

Usually the wells are sunk near the kitchen, and in dangerous proximity to the privy and other sources of contamination. The well draws its supply from an inverted cone, having its apex at the bottom of the well and its base at the surface of the ground. In dry seasons this base is often extended until the well becomes a receptacle for the more or less perfectly filtered filth from all the sources found in the average back-yard, and the water, often sparkling in its apparent purity, becomes a culture-fluid for any disease germs finding their way into it.

Two methods of prevention, having the same general object in view, are to be recommended. The first involves the thorough disinfection of all discharges from the bowels of typhoid fever patients. This is best done by the use of a solution of chloride of lime, eight ounces to the gallon of water, using a quart of this solution for each discharge, and allowing it to stand in the vessel at least one hour before emptying. A solution of corrosive sublimate, two drachms to the gallon of water, will answer the same purpose, but requires to remain longer in contact with the material to be disinfected. Bed and body linen soiled by such patients should be disinfected by the use of the same solution, or by boiling.

The second method relates to avoiding the use of suspicious water, and especially well-water, and where this cannot be done, to boil such water before it is used for drinking purposes. In the absence of a pure and well guarded public water-supply, properly stored cistern-water is probably open to least objection.

The effectual practice of these methods will require intelligent care and some expense, but it is confidently believed that their general adoption would result in the practical disappearance of a disease which is not only a disgrace to our civilization, but an annual scourge and tax upon the people of Kentucky, in comparison with which yellow-fever and cholera sink into insignificance.

Upon the same subject, Dr. Edson, of the New York Health Department,

writes,—Nothing is more discreditable to the civilization of the nineteenth century than the existence of typhoid fever. Wherever men are congregated in houses and villages this fever is endemic. From Greenland to India, from England to China, it holds sway. Yet of all diseases it is the most easily preventable, not even excepting small-pox. Still its ravages in New York city grow more terrible from year to year. Careful scientists have isolated its germ and taught us its characteristics, yet their teachings seem to be utterly lost on the people of New York. During the last year I have visited twenty towns supplied with water from dug or driven wells. In every instance the supply was polluted, and in most cases its pollution was the cause of the prevalence of typhoid fever.

After a long and careful investigation I have come to the conclusion that the fever is rarely due to any other cause than polluted water, milk, or meat. The first named is the most common. The following propositions have been recently established beyond doubt by the ablest physicians in this country and in Europe: First, the typhoid is due to a germ, in bacillus typhosus; second, this germ is contained in the sputa of typhoid fever patients; and thirdly, the bacillus typhosus is easily destroyed by disinfection with efficient agents, such as heat, mercuric bichloride, and carbolic acid. I have collected hundreds of illustrations to show that these ideas are correct.

Typhoid is most frequently propagated by contaminated well-water. It is safe to say that there is not a well in the country, the water of which it is safe to drink. Hence, most of the cases of typhoid occurring in this city in the fall are caused by water drunk from wells during the summer outing. Those wells furnish nice, sweet-tasting water, which will impress the drinker with its purity; but they are really what the Bible calls 'whited sepulchres.' The wells are sunk near the houses, often under the floors of the kitchen, near which are built the cesspools. The wells draw their supply of water from inverted cones, the base of which is the ground surface. The cesspools contaminate the cones, and the germs of typhoid are thus spread.

Another great cause of the fever is ice. Ice, from infected water, has been shown to be a source of danger. The germ is not destroyed by extreme cold. The germs that caused the Plymouth epidemic were exposed to a temperature of 22° below zero. Dr. Fordyce Barker has recently showed that of twenty-two cases of typhoid fever developed at a popular watering-place in this state during one of last summer's months, it was found that only those who used ice from a lake near by were affected. This ice was cut from a point near the entrance of a sewer which drained the town, or a portion of it. The use of this ice was stopped, and the epidemic ceased.

Milk may be the carrier of typhoid germs, and may become infected either through the water used in washing cans, or get the germs through the digestive system of the cow.

To sum up the logical conclusions from my investigations, I can say, first, that typhoid fever never infects the atmosphere; second, that it never arises *de novo;* and, third, that the causes of the disease, in order of their frequency, are as follows. First, infected water; second, infected milk; third, infected ice; fourth, digital infections; fifth, infected meat.

Dr. Charles V. Chapin, superintendent of health, of Providence, R. I., in his most excellent annual report presented during the present year, discusses in a very intelligent and practical way the more common preventable diseases. Among other excellent things regarding typhoid fever he says,—

The demonstration of the germ theory, so far as typhoid fever is concerned, explains the apparently contradictory theories which prevailed a few years ago. We know that this disease is produced by an organism, and that this grows and propagates itself outside of the body on a great variety of organic substances. We know that this organism is thrown off from the body of the patient in the evacuations of the bowels. We can understand how some have urged that typhoid fever must always pass directly from one person to another through the pollution of water or air with such evacuations, for it undoubtedly is caused in this way at times, as in our last epidemic. We can see, too, how there have been strenuous advocates of the *de novo* origin of typhoid, for as it is known that the germs of the disease may flourish outside of the body, and are not killed by freezing, they may continue to live so for an indefinite time, for many years, even, and be transplanted from place to place without the agency of human beings, as are the seeds of many of the higher plants. Varying conditions of heat and cold, of moisture in the air, and of precipitation, the height of the ground-water, collections of filth, decomposing vegetables, privy-vaults, defective drains, and many other things, may at different times have an influence in developing and spreading the disease, and hence a great variety of causes have been considered, and rightly considered, as productive of typhoid-fever. The whole matter is made comparatively clear by our knowledge of the behavior of the organism which has been shown to be in all cases the active agent in the production of the disease. Though there are yet many things which we would like to know about its life history, we know enough to give us great assistance in the practical work of prevention.

Pure water must be obtained at any cost. Organic matter must not be allowed to accumulate and decay around our dwellings. The plumb-

ing and drainage must be made perfect. Every possible contamination of food and drink must be guarded against. It is not at all unlikely that food which has remained too long about the house, in cellar or neglected refrigerator, or in the stalls of the markets or the huckster wagons, may be contaminated with the growing germ, and therefore we should try to have our food as fresh as possible. All such precautions have long been urged by sanitarians, and are being more and more effectually carried out by the public. The result is that typhoid has rapidly diminished in all the better cared for cities and towns.

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## THE HYGIENE OF PUBLIC INSTITUTIONS.[1]

BY SELDON H. TALCOTT, MIDDLETOWN, N. Y.

The first essential to health in every public institution is a suitable location. This should be selected with a view of securing purity of surrounding atmosphere, abundant supply of water, a thorough facility for drainage, and the disposal of sewage. Whenever practicable, the site selected should be a plateau of land so situated that there is an easy and natural slope in every direction. Such sites may easily be secured in almost any portion of the Eastern, Middle, and upper Western states.

While it is sometimes desirable to locate a public institution near the sea-shore, or along some river course, it is also wiser and safer to go beyond and above the valleys, and thus avoid, as far as possible, a foggy, or murky, or humid atmosphere.

A suitable site having been selected, the building should be constructed with a view of securing easy and abundant ventilation, and the rapid discharge of all waste material. Particular attention should be given to the foundation walls and the basement. These walls should not only be securely laid, but they should be thoroughly drained, both externally and internally. The floor of the basement should be absolutely solid, and impervious to moisture. It should either be flagged and the joints carefully cemented, or a heavy coat of cement should be laid upon concrete. No pipes should be placed under the basement floor, except the necessary drainage pipes. All pipes for the conduction of water, or steam, or sewage, should be hung up in plain sight, and where, in case of leak, they may be easily repaired.

The basement of every public building should be used for no other purposes than those of ventilation and heating. Basement windows should be large enough to admit and transmit constantly a large supply of fresh air.

[1] Read before the Sanitary Convention at Pittsburgh, and copied from the *Annals of Hygiene*.

The cooking in a public institution should be done either in the attic of the main building, or in a separate and independent structure. All stores of whatever sort or variety should be kept in detached buildings, and no fruits or vegetables or meats, or other articles liable to decay, should ever be permitted in the basement of a public institution. No one should be allowed to sleep in the basement, for, if this be allowed, the air in the rooms overhead is quite certain to become contaminated.

All public buildings for the accommodation of either the sane or the insane should be no more than two stories in height. It is better to extend the buildings over a large area than it is to pile one story over another in a public hospital. Where patients are kept in a two-story building, it is easy, even for those who are weak, to readily go out upon the grounds; and, in case of fire, it is easier to save those who are upon the second floor than those who might chance to be upon the fourth or fifth floor.

So far as practicable, the baths, water-closets, lavatories, and slop sinks should be located in separate towers, conveniently attached to each pavilion for the reception and treatment of the sick.

The plumbing should be absolutely perfect, as upon it depends, very largely, the healthfulness of the institution. All possibility of the escape of sewer gas into the wards and corridors should be scrupulously avoided.

After the sewage has been gathered into suitable pipes and removed from the building, then it should be carried as far as possible towards the south or the north, and not towards the east or the west. Thus the winds will not bring back the offensive odors. The sewage should be conducted to large cesspools, and these cesspools should be emptied every twenty-four hours by means of a siphon. The sewage, in order to be distributed without contaminating adjacent streams or without imposing upon those living in the vicinity of the hospital, should be distributed through an arterial network of drain pipes, located about one foot underneath the ground. This is the sub-irrigation plan of Mr. Waring. Before the sub-irrigation tiles are laid, the land itself should be thoroughly underdrained with large tile pipes, placed at least three and a half feet under the surface. Then the sewage distributing pipes should be so laid as to cross the regular drain pipes. In this way the land may be thoroughly fertilized, while the unavoidable waste is filtered through two feet of soil at least, and thus purified it passes into the drain pipes to be carried away to some neighboring stream.

The walls of a hospital should be of brick or stone; or a wooden frame may be put up, and in this may be placed layers of mineral wool, or some such material, so that in case of a fire the walls may burn slowly.

All the main stairways should be of stone, set in brick walls, so as to be fire-proof.

The floors of all bath-rooms and water-closets should be tile, or slate, or cement. Wherever practicable, bath-rooms and stairways and halls should be wainscoted with dry, hard wood, thoroughly seasoned, matched, and covered with a varnish or other preparation to prevent the ingress of moisture. All floors should be smooth, hard, and oiled, to prevent the absorption of foul matter. The side walls may be plastered, the last coat being a preparation of cement. The ceilings overhead should be covered with corrugated iron, instead of plaster; thus all danger from falling plaster is avoided.

Paint should be used freely in public buildings. Walls may be painted, while wainscoting may be oiled or varnished. Two or three coats of paint applied to an old wall seem to have a good effect in either fixing or destroying the germs of disease which may have lodged therein.

Where the walls are suitably tinted and decorated with stencil tracings, they may be made very beautiful and attractive, and thus conduce to the comfort and happiness of the patients.

The floors of the main halls in every hospital should be free from carpeting, and should be kept clean and highly polished. The same may be said of wards where those suffering with contagious or infectious diseases are being treated. In parlors and bedrooms of asylums, carpeting may be used, both for the purpose of rendering them homelike and cheerful in appearance, and also to make them somewhat more comfortable in the winter season. If a room cannot be carpeted throughout, then a soft rug should be placed beside each bed.

The water-supply in every hospital should be practically unlimited. Water is the great disinfectant, and should be used without stint or limit; but its application should be rapid and skilful. Every dusty floor should be mopped once or twice a day, but after the dust is removed with water, the water itself should be wiped up and the floor left dry.

All water-closets should be drenched freely and frequently with water, not only when the water-closet is in use, but every morning and evening the water in every trap should be changed, even if that trap has not been in use. The fresh air supply in every hospital should be as constant and as free as the water-supply. Air should not only be permitted to enter, but it should be forced to permeate every portion of every room and hall and corridor, at all times both night and day. The change of air should be slow, to avoid drafts, but it should be certain.

Where the basement is absolutely clean, fresh air may enter it and pass by flues directly to every room. The foul air should be drawn out at the top of the building, from every room, by means of steam coils placed over the ventilators, thus creating and insuring a constant change

of air. Air charged with carbonic acid gas should be forced out through openings near the floor.

Hygiene in public institutions includes not only proper construction, proper sewerage, and full supplies of fresh air and fresh water, but it should include also a consideration of food supplies. By making a wise selection of the varieties of foods which come within our reach, we may be able to relieve the unfortunate conditions and tendencies which exist always among the sick. Food should be furnished for the purpose of replenishing the wastes of disease, and also for the purpose of recuperating those who have suffered from long continued exhaustion through disease.

The best food having been selected, then special attention should be given to its palatable preparation for the use of the patients. Good cooking should be recognized not only as a fine art, but as an imperative necessity in every public institution. It is wise to remember just what are the effects of various foods upon the human system. Lean meat stimulates; fat meat relieves nervous erethism; vegetables sustain life in a moderate and healthful manner; fruit purifies and cools the blood, and aids in keeping pure the general system; grain foods and milk nourish, upbuild, and recuperate all the life forces.

When the food of an establishment has been carefully selected, and skilfully prepared for eating, and wisely administered, then the patients subjected to such nourishment are most surely put upon the direct line to recovery.

We offer these few hints upon hygiene in public institutions more for the purpose of stimulating further discussion upon the subject, than with the expectation of enlightening those who have taken the trouble to listen to these suggestions.

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## THE WATER-SUPPLY.

We clip the following from a recent issue of the *Manchester Mirror*, and commend it to all who are using well-water as a subject for serious consideration:

Water is not only a convenience but a constant necessity, and it is too often the case that where the supply is ample the quality is not questioned. The saying that "Ignorance is bliss" is very true in this case, but that "'Tis folly to be wise" may be questioned, for this same blissful ignorance is dangerous and often fatal.

Clear cold water is what we think about and long for, and when people from the city, who are disgusted with the water-supply because it is warm in summer though it runs from a clear lake among the hills, go out into the country and draw a bucket of water from a well surrounded with moss-covered stones, and drink their fill because it is "pure well-

water," they look upon the wells as one of the chief delights of country life, and one of the main sources of country health. But they make a great mistake in many cases. At the bottom of that clear, cool water may be a foot or two of filthy, stinking mud. Behind those moss-covered stones are dead insects and other reptiles whose bodies are leaching into the well with every rain and with every splash of water from the rising bucket.

Typhoid fever is a disease peculiar to farm-houses, and when traced at all it is usually traced to the water-supply, and many physicians have been made rich and many lives sacrificed by the hidden poisons in farmers' wells. Conditions have changed since our ancestors raised their large families of healthy children while using water from the farm well. The soil is more fully saturated with impurities, out-buildings are more numerous, and labor-saving ideas have located the wells nearer the houses, and many other causes have combined to demand greater care in regard to the water-supply.

Some people will turn in disgust from a spring if they see a frog jump into it, and go to a well where the dead mice are behind the stones or soaking at the bottom. Where water can be brought in suitable pipes from distant springs, the problem is solved.

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## AN INGENIOUS TEST FOR VISUAL MALINGERING.

In a large factory a workman in wielding his hammer carelessly allowed it to slip from his hand. It flew half across the room, striking a workman in the left eye. The man brought suit in the courts, and although an eminent oculist, after an examination, declared that no apparent injury could be detected, claimed that his eyesight was destroyed, and refused all offers of compromise. As the law requires owners of factories to pay all claims for damages resulting from injury during work, the owner, though confident that the man was shamming, had about made up his mind that he would be compelled to pay the claim. On the day of the trial a further test was made. The oculist for the defence had a pair of glasses made, the right eye being of red and the left eye of ordinary glass. He brought also a black card with a sentence written on it in green ink. The plaintiff was ordered to put on the glasses and read the sentence, which he readily did, thus proving himself a perjurer, as the sound right eye, being fitted with a red glass, could not distinguish the writing,—the combination of green and red producing black, which, on a black ground, was of course not visible,—and the left eye, which he claimed was blind, was the one with which the reading had been done.—*N. Y. Medical Times.*

# DOMESTIC VARIETIES.

## Health Hints.

SOME COMMON-SENSE IDEAS FOR PRACTICAL USE.

One of the best ways to keep in good health is not to think or worry too much about it. If you feel strong and well, do n't imagine that some insidious disease may be secretly attacking your constitution. Many people are like the inexperienced traveller, who anxiously inquired about the symptoms of sea-sickness, and how he would know when he had it. One generally knows when he is sick, and frequently many supposably alarming symptoms prove, upon investigation, to be either perfectly natural occurrences, or of very slight importance. Eat and drink what you desire, so long as it agrees with you. Your stomach knows pretty well what it can digest. Plain, simple food is desirable, as a general thing, but the luxuries of the table in moderation will do no harm. Alcoholic beverages are not fit for habitual use. They are true medicines, and should only be used like any other medicines—under the advice of a physician. As a regular beverage they can do no good, but will almost certainly do harm. Take all the sleep you can get, but remember that the necessary amount varies greatly for different persons. Some must sleep at least nine hours, while others thrive under six. Only do n't rob yourself of what you really need. The "midnight oil" is a terribly expensive illuminant to burn, either for purposes of labor or study.

Avoid sudden changes of temperature. You cannot avoid them in New England, but you can guard against them by always wearing flannel underclothing. The lightest grade of flannel, sold especially for summer wear, is a great life-preserver, and not oppressively warm even in the hottest weather. Always treat a common cold with great respect. Ninety-nine times out of a hundred it will get well anyway, but the hundredth cold, if neglected, may lead to bronchitis, pneumonia, or consumption. It is best to take no such chances. Do n't trifle with patent medicines. If you are sick enough to need any medicine at all beyond the simple household remedies familiar to all, you are sick enough to need the attendance of a physician. If your watch is out of order, you do not fuss over it till it goes, but send it to a watchmaker; but too many people, when their infinitely more delicate bodily machinery goes wrong, think they are fully equal to the task of setting it right again. They are the undertakers' best friends. Whatever else you do, do n't

employ any physician who advertises. There is nothing criminal in advertising, but, by common consent and agreement, all reputable physicians leave such methods of business to the travelling quacks, mind-healers, "Indian" physicians, "medical institutes," and a thousand and one other forms of ignorance and rascality which prey upon a long-suffering people. The so called regular physicians are not omniscient or omnipotent, but they know more about disease than anybody else, and will do all that anybody can to cure you. Don't read medical works unless you are prepared to have all the different diseases therein described. It takes a strong mind to read a minute description of any disease without discovering some of the symptoms in himself. The quacks know this well, and their so called "medical" books consist principally of descriptions of every imaginable symptom appended to the most painful and fatal diseases. Remember, that if you think you have undoubted symptoms of Bright's disease, consumption, cancer, insanity, or paralysis, that you probably have n't a trace of any such disease about you. The favorite prescription of a very successful physician was "to be a little lazy." This remedy ought to be used with judgment: he once recommended it to a government official!—but, with most people, rest and quiet are the best possible means of cure, and a change of occupation is usually better than a total cessation of activity.

By all means take as much exercise as you can, and be in the open air as much as possible. Out-door life is the natural condition of mankind, and the more one can have of it the better. The practice must not be carried to extremes, however. There are many days when one is much better off in a warm, comfortable, well ventilated house, than trying to take out-door exercise in a mid-winter storm or under a July sun, and no one ever strengthened his constitution by sleeping with his bed-room window open with the outside temperature at zero, or allowing the snow to drift in upon his pillow. Fresh air, sunlight, good and sufficient food, pure water, out-door exercise, temperance in all things, and a cheerful disposition, are the chief remedies in Nature's pharmacopoeia, and are worth more than all the drugs and medicines of the shops.

Dr. Holmes has truly said that if nine tenths of all the medicines in the world were poured into the ocean, it would be all the better for mankind and all the worse for the fishes; and the best physician can do little more than to provide good nursing, and aid nature in throwing off disease.—*Popular Science News.*

"What are the last teeth that come?" asked a teacher of her class in physiology.

"False teeth, mum," replied a boy who had just waked up on the back seat.

### Curiosity.

The following bit of rhyme from the *Advance* is certainly sufficient unto itself, but we cannot forbear calling attention to the profound philosophy of it. Curiosity may be a necessary and vital element in our psychology, but certainly its manifestation leads sometimes to confusion:

"There was a sign upon a fence:
The sign was 'Paint,'
And everybody that went by,
Sinner and saint,
Put out a finger, touched the fence,
And onward sped:
And as they wiped their finger-tips,
'It is,' they said."

### His Three Sons.

AN OLD FARMER TESTS HIS BOYS TO DECIDE WHICH SHALL HAVE THE PLACE.

Once upon a time an old man called his three sons to him in the dusk of the evening, and in a faltering voice said to them,—"My boys, in a little while you will have no father. I am standing on the shore of the river of death, and soon I must launch my boat upon it. Now, I have, as you know, a splendid farm, upon which one man can thrive, but as there are three of you I have been sorely perplexed as to which should have it. I have, therefore, decided to give each of you $2 that you must spend to-morrow, and to the one making the wisest purchase shall the farm be given. Come to me to-morrow evening at this time and tell me how you have each expended your money. Now, good-night, and heaven bless you all."

On the following evening the three sons assembled before their father. "Reginald," said the latter to the eldest, "what did you purchase with your two dollars?"

"Father," returned the son, "I pondered long that I might make wise use of the money, and at last I bought a pair of strong shoes."

"Well done, well done; the journey through life is rugged and hard, and the thorns are thick upon the way. You have shown prudence and forethought, and I love you the better for it. And what did you buy, Augustus?"

"I, too, thought long and deeply," responded the second son, "that I might not purchase anything trivial or foolish. Since the cap that I wear is worn and ragged, I bought a hat with a wide brim, which I show to you, my father."

The old man regarded him with a glance of pride and affection, and said,—"You, too, have done well, Augustus; often in this world the brow is fevered, and the sun's rays beat fiercely upon the aching head, and your hat will comfort you. I rejoice that my sons are so filled with wisdom. And you, Theophilus, what did you buy?"

"My father," answered Theophilus, "I did n't ponder worth a cent. As soon as I left you last evening I blew in my stuff for five tickets to the base-ball games."

With tears of joy streaming down his furrowed face the venerable man embraced Theophilus, and murmured in a voice hoarse with emotion, "Had I a farm as large as Texas, with a wind-mill on it, it would be yours!"

And then Reginald and Augustus moved sadly away into the gathering gloom, and while the one tried to keep the flies off himself with his hat, the other kicked himself severely with his boots.—*Nebraska State Journal.*

## The Pigeons.

"Look at the pigeons!" the baby cried,
As we drove through the dusty lane.
I looked: far off was a flock of geese
Quietly picking up grain.

"Your pigeons are geese," I said. But no,
They were pigeons, he knew. He *knew*
They were pigeons; so I only said,
"We 'll see before we are through."

The talk ran on, for my friend and I
Had numberless things to recall
Of our childhood days, and we quite forgot
The boy and the pigeons and all,

Till into the midst of the flock we drove,
And a voice, subdued and slow,
Half grieved, but wholly defiant, said,
"It 's a *kind* of pigeon, I know."

Ah, well! are we of a larger growth
Not made of the self-same clay?
We *know* we are right: when they prove us wrong,
"It 's a *kind* of pigeon," we say.

—*Good Housekeeping.*

### Ice in the Sick-room.

*The Sanitarian* says,—A saucerful of shaved ice may be preserved for twenty-four hours with the thermometer in the room at 90° F., if the following precautions are observed: Put the saucer containing the ice in a soup plate and cover it with another. Place the soup plates thus arranged on a good, heavy pillow, and cover it with another pillow, pressing the pillows so that the plates are completely embedded in them. An old jack-plane set deep is a most excellent thing with which to shave ice. It should be turned bottom upward, and the ice shoved backward and forward over the cutter.

### Warning against Anilin Inks.

A writer in the *American Grocer* says,—"It is growing more and more the custom to have deeds, contracts, and valuable documents printed on a type-writer in anilin inks. This is a great mistake, for in a few years they are sure to be obliterated. During General Grant's term as president, one of his cabinet officers discovered that the records of an important branch of one of the departments had been for two years written in purple ink. He had at once issued an order forbidding its use in the department, purchased a new set of books into which two years' records were copied, and thus saved what in a few years would otherwise have been lost. It is one of the problems of chemistry to find something which will make permanent the beautiful anilin colors, but thus far all efforts have failed. I suggest, therefore, that merchants have all important papers which it is desirable to keep for a number of years, written in ink which, instead of fading with age, will grow darker and more permanent. There are a number of American and foreign inks which are unexceptionable in this particular."

On the 15th of June the inauguration of improving the sanitary condition of Naples took place. King Humbert, accompanied by the Queen and Crown Prince, took part in the inauguration. According to the plans adopted, the poorer districts, where in 1888 the cholera epidemic spread to such an alarming extent, will be thoroughly renovated. It is stated that 17,000 houses will be torn down, new streets constructed, and the main street from the central depot will pass through the district which now contains the most pestilential dwellings. It will require about ten years to complete the work.—*Sanitary News.*

Flattery is foolishness, and whosoever is deceived thereby is not wise; nevertheless the discreet woman may use a little of it for her husband's sake.

Get atop of your troubles, and then they 're half cured.—*L. M. Alcott.*

## CONTAGIOUS AND INFECTIOUS DISEASES IN NEW HAMPSHIRE.

The following contagious and infectious diseases were reported for the month of August:

Diphtheria: Dover, 15; Manchester, 6; Claremont, 7; Newport, 6; Nashua, 6; Derry, 2; Rollinsford, 2; and Bethlehem, Concord, Moultonborough, Richmond, and Salem, 1 each.

Scarlet-fever: Manchester, 37,—making a total of 186 cases since May 18; Tilton, 11; Berlin, 5; Concord, 6; and Laconia, Derry, and Claremont, 1 each.

Typhoid fever: Manchester, 8 (3 imported); Claremont, 7; Concord, 6; Laconia, 5; Dover, 3; Hudson, 3; Bethlehem, 2; and Henniker, Hopkinton, Jaffrey, Walpole, Nashua, Moultonborough, and Weare 1 case each.

Measles: Manchester, 1 case.

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## PUBLICATIONS RECEIVED.

Report of Proceedings of the First Annual Convention of the North Carolina Sanitary Association, held at Raleigh, Feb. 6 and 7, 1889.

The Proceedings of the Quarantine Conference held in Montgomery, Ala., March 5, 6, and 7, 1889.

*Albany Medical Annals*, published monthly at Albany, N. Y., at $1 per year.

*The Lisbon Index.* Published weekly at Lisbon, $1 per year.

*Manchester Weekly Budget.* Published at Manchester at $1.50 per year. A spicy paper, devoted to general and local news, miscellany, etc.

*Suncook Journal.* An independent newspaper published weekly at Suncook; $1 per year.

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Customer—"How is your brother doing, Isaacstein, who went to the oil country a year or so ago?"

Mr. Isaacstein—"Ah! poor Abraham, he was blown oop by dynamite; dot vas pad."

Customer—"You do n't tell me. Were his remains found?"

Mr. Isaacstein (overcome)—"My frent, not more as t-venty-five per cent. Choost think of dot; only t-venty-five per cent. Dot vas awful."
—*New York Sun.*

Every man is his own ancestor, and every man is his own heir. He devises his own future, and he inherits his own past.—*Dr. H. F. Hedge.*

THE

# SANITARY VOLUNTEER

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## SANITARY AND OTHER NOTES.

The Vermont Microscopical Association is after a new disease germ, and offers $250 for its discovery. Information regarding particulars may be had by addressing C. Smith Boynton, M. D., Burlington, Vt.

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A new journal called the "*Annales de la Tuberculose*" has been established in Paris. It is devoted to the study of tuberculosis, and is published bi-monthly.

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We have in medical literature the clergyman's sore throat, the housemaid's knee, the writer's cramp, etc., but the latest form of professional neurosis is the gum-chewer's paralysis. Young la-la-lads, beware!

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Judge Andrews, of New York, says the *Sanitary Era*, has lately decided that a stable, however well it may be built, is a nuisance in the vicinity of handsome residences, and that an action can be brought to have it removed.

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Another faith-curer has come to grief. A young woman died on September 12, at Brooklyn, N. Y., of typhoid fever. She had been treated entirely by a faith-curer, who refused to have the case seen by a physician, and to which refusal the family agreed. At the coroner's inquest, the jury brought in a verdict that the death was occasioned by typhoid fever, hastened by criminal neglect on the part of the faith-curer, who was held for the grand jury.

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The value of compulsory notification in the case of contagious and infectious diseases was recently shown by Dr. Munro, of Jarrow, England, in the London *Lancet*. He states that the system of notification has

been the means of saving, on the average, eighty lives and one thousand cases of sickness per year in that town. This is only additional testimony of facts already thoroughly demonstrated. Notification by physicians, and prompt action on the part of local boards of health, will reduce the death-rate of any town.

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Mrs. Maybrick may have been an accessory in the murder of her husband, but since an English medical journal has published a statement of the drugs that were administered to him during his illness, we feel positive that she could not have been the principal. The list is as follows: Morphia suppositories; ipecacuanha wine; papain and iridin solution; cascara sagrada; nitro-hydrochloric acid; tincture of nux vomica; Fowler's solution; Plummer's pill; dilute hydrocyanic acid; tincture of henbane; bromide of potassium; antipyrin; tincture of jaborandi; bismuth; sulphonal; cocaine; nitro-glycerine; dilute phosphoric acid; solution of chlorine, sanitas, glycerine, and Condy's fluid, as mouth-washes.

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Dr. Willis G. Tucker, of Albany, N. Y., chemist to the New York State Board of Health, has made a report, so we are told by the *Medical Record*, upon his examination of various popular brands of cigarettes. Statements are often made that cigarette tobacco is adulterated with opium or other agents, and that the paper wrapper contains various injurious substances. Careful analyses of tobacco and paper failed to reveal any poisonous ingredients other than the tobacco itself; and the examination tended to show, what is probably true, that most cigarettes contain pure tobacco and good paper. The evils of cigarette smoking are, as Dr. Tucker states, due to the fact that cigarettes are cheap, convenient, and can be used in large and excessive quantities, that the smoke is usually inhaled, and that children and immature persons so freely use them.

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No society or voluntary organization having for its object the sanitary improvement of the people, has so remarkable a record or has achieved so great success as the American Public Health Association. It was founded by a few philanthropic gentlemen, on a September day in 1872, in the parlor of the Ocean hotel, at Long Branch; and so well was the foundation laid, that it has become the largest association of its kind in the world, and embraces in its territorial jurisdiction the United States, the Dominion of Canada, and the provinces. Its publications are almost

sufficient to constitute a complete library upon sanitation. They consist of fourteen large and elegant volumes, to which one will be added yearly, "Disinfection and Disinfectants," the most authoritative work extant upon the subject, and the Lomb Prize Essays. This association has been the directing power in formulating the public health efforts in this country, and its influence has been felt in many a legislative hall, and always in behalf of the people. The good that it has done and is doing reaches to tens of thousands of homes, reduces disease, prolongs life, and contributes in innumerable ways to the comfort and happiness of mankind.

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The American Public Health Association will hold its sixteenth annual meeting at Brooklyn, N. Y., October 22–25 inclusive, and it is expected that this meeting will be the largest, and in some respects the most influential in the cause of public health, that it has ever held. A large number of papers upon important sanitary and economic questions, by some of the ablest and best known writers in America, are promised. There will also be an exhibition of sanitary goods and appliances, commencing October 21 and continuing until December 1. This exhibition is a new feature in connection with the Association, and, under the management of the efficient committee having the matter in charge, it will doubtless be an interesting and valuable display. The exhibition will be divided into nine sections, as follows: The Dwelling; Schools and Education; Factories and Workshops; Clothing and Dress; Food; Sanitary Engineering; Public Health Administration in Cities and Towns; The Laboratory; Red Cross Section. Applications for space, etc., should be made to the chairman of the committee, Dr. A. N. Bell, 113a Second Place, Brooklyn, N. Y.

For information regarding the meeting or the Association, address the secretary, Concord, N. H.

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## THE ABSORBENT SPOT.

There seems to be in the brain of mankind an absorbent spot, which physiologists and anatomists have failed to find in the structural make-up of that organ. That it has existed from time immemorial is shown by the records that are strewn in the pathway of generations. In the voluminous writings of the alchemists of old, in the mystifying profundities of ancient theologians changed and adapted to the times, even down to and since the days of Cotton Mather, in fact, all along the avenues of history, can be found a silent demonstration of the absorbent spot in the

human brain. It is only slightly affected by school curricula, college courses, or by historical, classical, literary, or scientific reading; but let some semi-plausible humbug, shrouded in alleged occult mysteries, be presented by some arrant quack with the veneering of respectability, and the absorbent spot drinks it in as a dry sponge takes up water. This spot seems to have but little absorbent powers except for humbugs, and for these it is always thirsty. The moment it has recovered from the debauch of one humbug it is ready for another, and its indulgence, like that of the drunkard, is frequently limited only by the pocket-book or by death.

The affinity of this particular spot in the brain for frauds and delusions has, it is true, been somewhat changed and modified, even since the days of Puritan despotism in New England; but it still remains in full functional activity. In some it is so abnormally developed as to absorb, with gleesome expectancy, the belief in an elixir of life which shall bring to a perpetual standstill the wheels of time.

A few evenings since a voluble fakir, with one or two clownish assistants, harangued the multitude in this city, from an open landau on the corner of a street, under the glaring light of a kerosene torch, upon the wonderful curative properties of a compound he offered for sale. So great was his success that he remained for several evenings, and always had a large audience and did a thriving business, selling an almost unlimited quantity of his worthless mixture. As he was about leaving, he said, in a rather confidential manner, that the city "contained either more sick persons or more fools than any place of its size he ever saw." He should have stated the fact less offensively, by saying that his gullible audience seemed to have a remarkable mental development, especially of the *absorbens locum*, which readily established a social familiarity between them and his pocket-book.

Likewise in one of our sister cities, within a few weeks, a notorious quack doctor created considerable temporary distinction by "magnetizing" this absorbent spot, till his devotees believed that his "spiritual and magnetic treatment" would produce miraculous cures. So it was demmonstrated that the absorbent spot may be filled upon the storage battery plan. We might have been treated to further developments in the evoluting process of this mental quality had not the "wonderful natural healer" suddenly skipped the town to save his precious carcass from arrest.

We all have this physiological quality, differing only in degree. Its minimum manifestations may be harmless, but such maximum outbreaks as we occasionally witness should be prevented by legal restraints.

## THE NON-VENTILATED SCHOOL-ROOM.

The season approaches when the evils of non-ventilated school-houses begin to make their impress upon the pupil. The windows and doors must be closed to keep out the cold, and with it in most of our school-houses is excluded the health-giving oxygen so necessary to life. Parents who would rave with unbridled indignation if their children were deprived of a small portion of their daily food, fold their hands, so to speak, in placid inactivity, and allow them to suffer hour by hour for a little fresh air. The town builds a large box, and into it, regardless of physical results, are huddled the children for several months in the year —just what is being done to-day in New Hampshire; for the public appreciation of the simplest requirements of healthful school life has not sufficiently crystallized in many towns to prevent this criminal and un-Christian practice. The building committee that constructs a school-house without making ample provision for ventilation is guilty of a crime that ought to be punished by a long term of imprisonment at hard labor.

The importance of pure air in the maintenance of healthful physical functions in the human system, especially in childhood, has been demonstrated over and over again, so that this part of the question admits of no controversy; and if our school government is too indifferent to rescue the children from their perilous environments, it is time that the system be reconstructed. If the fault is not with the system, it must certainly be charged to malfeasance in its administration. At any rate there are grave errors to be corrected, and non-ventilation is not the only one which can be found in the school affairs of every town.

The ventilation of school-rooms, however, is an essential, bearing so directly upon the health of the pupils that no excuse, apology, or explanation should be accepted by any parent in its stead.

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## LARD AND OLEOMARGARINE.

The lard and the oleomargarine questions, as they have been presented to the legislative bodies of this country, are worthy of only slight consideration from a sanitary stand-point. So much activity in the matter as has been exhibited around and within legislative halls is not from any demand for better or different products, but solely an effort of producers and dealers to secure a more advantageous position in the markets of the world. The struggle is and has been almost entirely a monetary one. The placing of a tax by the national government on oleomargarine was at the instance of the agricultural interests of the country; and for the

same reason the legislature of New Hampshire enacted a law requiring this article to be colored pink before it could be legally sold in the state. No evidence was submitted to show that it was unsuitable for food, and the color act was passed to prohibit its sale, which could not be done by direct legislation. It was simply a method of excluding from the state a product likely to be used to an extent that might slightly lower the price of butter, and perhaps be fraudulently substituted for it. Since oleomargarine is known to be a healthful article of food—infinitely better than poor butter—sanitary authorities have taken no part in the oleomargarine question.

The same is substantially true regarding the lard question, although some public good may come from a careful examination of the subject from the stand-point of health. In the first place, it may with propriety be questioned whether the fat of the hog is, or ever has been, a healthful article of food. But waiving that point for the present, we must admit that there are some degrees of difference in the various brands of lard that are found in our markets, which merit the consideration of the sanitarian. The attempt on the part of certain packers to secure legislation solely in the interests of the hog products as against any healthful substitute should be understood by health authorities, that the latter may be prepared to act strictly in accordance with facts, and not unwittingly endorse an error.

As we stated in the last issue of the SANITARY VOLUNTEER, the only substitutes for lard, offered for sale, are beef fat and cotton-seed oil, both of which we are safe in saying are healthful food products. Thus the producers of beef and the manufacturers of cotton-seed oil have an equal right in the struggle for trade with the producers of lard; and if the sanitarian is called to testify, it can only be in behalf of the very products which the producers of "pure lard" are declaiming against.

Oleomargarine, beef fat, and cotton-seed oil are all healthful articles of food, and from a health stand-point we have no ground upon which to ask their exclusion from the public markets. The trade aspect of the matter is one thing, the hygienic quite another.

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## THE CESSPOOL.

The legislature of New Hampshire made one step in sanitary progress when it repealed the law which for several years required a privy vault, if within close proximity to other dwellings, to be six feet deep! The same law-making body ought to have gone another step, and made it a fine to construct a cesspool in the vicinity of dwellings, or within contaminating distance of any well from which water is used for domestic

purposes. The cesspool is the most dangerous contrivance ever invented for the storage or disposal of sewage. It becomes in a short time a festering, decomposing, disgusting mass of filth, poisoning the air, the soil, and the water in its vicinity. It is an incomparable device to spread typhoid fever, distribute diphtheria, and carry other diseases to the family. The area of soil polluted by a cesspool, through gradual soakage into the surrounding earth, is sometimes very great; in other instances the fluid contents will follow underground water channels, or fissures in the formation rock, to a great distance. There is no method of sewage disposal so liable to pollute wells in the vicinity; they have not unfrequently been contaminated, when more than one hundred feet distant, by leakage from cesspools. If cesspools must be resorted to, they should be built of brick or stone, and laid in the best Portland cement. They should be water-tight in order to overcome the objections stated. If there is any other way of disposing of drainage, the cesspool should never be adopted. At its best, it is little less than a nuisance.

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## AN IMPORTANT CONTRIBUTION TO OUR KNOWLEDGE OF THE SPECIAL POISON OF DIPHTHERIA.

In the last number of *Public Health in Minnesota*, Dr. C. N. Hewitt gives a translation from the June number of the *Annales de l'Institute Pasteur* of a very interesting report of original researches respecting the specific virus of diphtheria. The authors are E. Roux and A. Yersin. It resumes, also, the conclusions of another report by the same authors in the December number of the *Annales*. The translation will b ereceived with especial interest by the medical profession.

The first conclusion is, "the bacillus discovered by Klebs in the false membranes, and isolated, afterwards, by Loeffler, is the cause of diphtheria." Their proof is the inoculation of a pure culture of this bacillus upon the wounded mucous surfaces of rabbits, guinea-pigs, pigeons, etc., producing thereby characteristic false membranes. Injected under the skin it caused oedema at the point of inoculation, a general dilatation of the blood-vessels, with congestion of the intestines and kidneys, and death. In the guinea-pig they found, beside and almost always, redness of the supra-renal capsules and serous effusion in the pleurae. In the rabbit there was no pleuritic effusion, but the liver was often the seat of fatty degeneration. When death did not occur too soon, they observed in these animals paralyses, resembling those which occur in man. Another very important conclusion is, that "the bacillus of diphtheria does not multiply in the organs of the body, but is found only at the point of

inoculation, and disappears entirely if the disease is prolonged. Diphtheria is, therefore, an intoxication caused by a very active poison formed by the microbe in the limited place where it grows." The authors give as proof of this statement their demonstration, by repeated experiment, that in pure cultures of the diphtheritic bacillus there exists a special chemical substance, which, injected under the skin of animals, gives them the disease, in the absence of any living microbe. A sufficient dose produces a rapid intoxication, with all the symptoms and the lesions which follow the inoculation of the bacillus itself, except that the false membrane is not produced. Animals who have received feebler doses often develop typical diphtheritic paralyses. The peculiarities of the virus as developed by experiment are very curious and interesting. Omitting many interesting details of methods, the bacilli are separated from culture fluids by a filtration through porcelain, so that the filtrate is deprived of all life, and owes any property it may exhibit to chemical compounds in solution. Such a culture, forty-eight hours old, furnished a liquid so active that three minims injected under the skin of a guinea-pig killed it in thirty hours. This virulent poison acts energetically on sheep and dogs. In the last we can induce an acute diphtheritic intoxication or chronic poisoning, with characteristic paralysis. Mice and rats, very curiously, resist without sickness doses fatal to dogs.

This poison is affected by heat in proportion as it is elevated and prolonged. A filtrate of which less than two minims were fatal to a guinea-pig, when heated to 58 C. (136.40 F.) for two hours before use, did not kill in a dose eight times as great, but it produced oedema at the point of injection, and was easily fatal to small birds. The same liquid, heated to 212° F. for twenty minutes, injected into the veins of rabbits in the dose of over 500 drops, did not cause any immediate sickness, though eight drops of the solution, before the heating, were promptly fatal. Though they had no appreciable immediate effect, these heated solutions were, usually, after a longer or shorter time, fatal, the animals lost flesh, though eating as usual in health, and exhibited symptoms of paralysis a few days before death. Their sickness was like that induced by the filtered urine of diphtheritic patients, or by maceration extract of the organs of persons dead of infectious diphtheria, injected into rabbits or guinea-pigs. Those experiments seem to prove that the bodies of the dead of diphtheria do contain the same poison as is found in pure cultures of the bacillus of the disease.

The reaction of a feebly alkaline veal bouillon used for this culture becomes acid for the first few days, and alkaline afterwards. So long as the culture is acid its poisonous properties are not great, and a large quantity must be injected to produce the acute disease; but later on,

when the reaction becomes alkaline, its toxic properties are largely increased. Filtered cultures, away from air and light in sealed vessels, were as active as ever after five months. In sealed tubes they lost very little toxic power after ten hours' exposure to sunlight. Put into tubes tamped with cotton, through which the germ-free air could get into the culture, and exposed to sunlight two hours, the culture was fatal to guinea-pigs after a long time, while after five hours' sunlight the same culture caused only local oedema.

In those experiments the cultures were never warmer than 86° F., and the results resemble those of similar experiments with the diastases as respects the operation of light, heat, and air.

The authors raise the question, Will the addition of an acid to an alkaline culture diminish its poisonous quality? They took an active culture, and, making it positively acid, injected fifteen drops under the skin of a guinea-pig, causing slight local oedema quickly recovered from; but seven drops of the alkaline liquid used in the same way was rapidly fatal to another one, and with the ordinary lesions. They found, also, that if this acid fluid is again neutralized, it recovers almost all its original virulence.

They tested the filtered culture in another way, over sulphuric acid in vacuo. The extract was intensely virulent. Alcohol dissolved some of it; but the solution was not poisonous. The extract of 100 c. c. of filtered culture (after extraction by alcohol), and again drying, was dissolved in 5 c. c. of pure water and poured into a dialyser. A single drop killed a guinea-pig. The outer vessel of the apparatus contained 10 c. c. of pure water (everything sterilized of course), and after twenty-four hours some of this water injected under the skin of a guinea-pig caused death in four days with characteristic lesions. The poison had therefore passed through the membrane, and, by a trial every succeeding twenty-four hours for four days, the virulence of the outer solution was found to have increased. The solution in the inner cup had diminished to two fifths, and its virulence was less. Their practical conclusion is, that the poison of diphtheria diffuses itself slowly, its action being first local, causing oedema, and then, little by little, into the body. The poison is not crystallizable, and its diffusion is much slower than if it were.

Another curious result of their experiments was, that, like the diastases, the poison of diphtheria will adhere to certain precipitates produced in the fluids in which it is dissolved. The most efficient precipitate was found to be the phosphate of lime by the addition of a solution of the chloride of the same salt to the filtered culture. By careful management they succeeded in getting several precipitates instead of one, and in this way proved a gradual loss of virulence in the culture fluid, and also

removed the great part of the poison adhering to the precipitates, which, carefully washed on filters with sterile water, were found, in small doses inserted under the skin, to cause death in four days, the lesions being more severe than those of the original culture. The granules of phosphate of lime were found entangled in a web of fibrine, mixed with white blood cells, a veritable false membrane, which suggested that caused by the injection of the microbe itself. Just as the microbe elaborates, at the point of inoculation, the poison which diffuses itself slowly, so the precipitate parts very slowly with the poison which adheres to it very strongly. At the moment of death all its poison has not been lost, for if it be carefully removed with a little of the oedema which surrounds it, and be inserted under the skin of another guinea-pig, it will produce there the characteristic symptoms of diphtheritic poison, as before.

They attempted to get a precise idea of the power of the poison, and of the weight of the dose sufficient to kill a guinea-pig or a rabbit. They found it always associated with other matters, and as difficult to isolate as the diastases it so closely resembles.

Fifteen drops of a filtered culture, when dried, left a residue weighing 0.154 of a grain. Deducting from this the weight of the ash and the portion soluble in alcohol, neither of which is poisonous, there remains but the .006 of a grain, and the most of this is made up of other substances than the diphtheritic poison. This infinitely small dose is sufficient to kill at least eight guinea-pigs, or two rabbits, and injected into the blood of a dog it would make him very sick for a long time if it did not kill him. But this poison, so fatal if introduced under the skin, may be eaten in large quantities by the same animal with impunity.

As the conclusion of their experiments, the writers believe that the diphtheritic poison resembles the animal ferments (diastases as pepsin, pancreatine, and the like), and its activity is comparable to that of these substances, and even more to the venoms.

They conclude their paper in these words: "It is very difficult to accustom animals to this poison, because of its activity. Even in very feeble doses it produces effects which are very enduring. It is because of this energetic toxic power that we ought to prevent the formation of false membranes in the sufferers from the disease. If you allow the bacillus time to produce a sufficient dose of the poison, it will be of no use to destroy the croupal membrane, or the bacillus itself; death will be caused by poisoning, for in diphtheria, contrary to what occurs in many other infectious diseases, the infection is not produced by a microbe invading the tissues, but by the diffusion through the body of a toxic substance produced upon a mucous surface, by a specific bacillus, and, so to speak, outside the body."

## MUSCLE AND MIND—VALUE OF MUSCLE CULTURE.

Investigations and experiments during recent years have clearly demonstrated that there is not only a close association between the muscles and the brain, but that these special organs of motion play an important part in the development of the mind. It has been heretofore too generally believed that the main object in the cultivation of the muscles was to produce gymnasts and athletes, neither of which are required in this age of the world; while belief in the value of promoting flexibility and softness in the muscles of the laborer has not been general. Indeed, it has not been generally recognized that if "Hodge" be taken from the plow in the field, and his muscular structure softened and developed by the bath, massage, and a suitable diet, without any special cultivation of the brain or mind, he will, in a few months, become a much more intellectual creature. When the fact as above indicated becomes generally known and practised in our public schools, there will probably be less trouble about the "school-book question."

In a valuable article in the last *Popular Science Monthly* (July, 1889) by Frances Emily White, M. D., on Muscle and Mind, the writer propounds six theses, as follows:

1. Exercise of muscles necessarily involves exercise of their associated regions in the central system; and voluntary movements at least require the activity of certain areas of the brain.

2. The systematic use of the voluntary muscles of the body must have an important influence on the development of the brain; hence also of the mind, of which the brain is the organ.

3. The muscles play a rôle in the development of mind similar to that which belongs to the other special sense-organs—the eye, the ear, etc.

4. Ideas have no special separate centres in the brain, but result from the excitation of those areas which have taken part in the original acquisition of ideas, viz., the sensory and motor centres.

5. The germs of volition are to be found in movements. Volition, so far from providing an original stimulus to the muscular activities, has itself grown out of these activities—the voluntary movements developing secondarily from reflex ones.

6. Movements are the primary source of pleasure and pain, which, in the experience school of psychology, are recognized as the basis of the entire mental life.

As the writer says,—"At least two cases have been recorded, of otherwise normal individuals, in whom a congenital absence of the left hand and a part of the arm was accompanied by a rudimentary condition of the corresponding convolution on the right side of the brain, showing

that the building up of these motor areas in the brain is largely dependent on muscular exercise during the period of growth. That the maintenance of their nutrition in the adult is also to some extent dependent on muscular exercise is made probable by the fact that wasting of the corresponding convolution has been found in a few instances after amputation of a limb."

And again: "The dependence of intellect upon sensation was recognized by Aristotle in his famous dictum, 'Nothing in the intellect not first in the senses;' and whatever the differences of view which divide the schools of psychology or individual psychologists as to the origin of our ideas of matter, time, and space, and whatever the real nature of the so called 'muscle-sense,' all agree that the special sense-organs are the chief avenues of approach to the brain, and that the sensation excited through these organs constitute the raw material of the mental life—touch, hearing, and sight being recognized as *par excellence* intellectual senses. Now, it is a most significant fact, from the point of view of my third thesis, that the activities of these three senses in particular involve muscular coöperation as an essential accessory."

Pleasure, she says, originating in physical activity, and reaching a far higher phase in the doing of intellectual work, culminates in the supreme consciousness of power which attends the moral actions. As pointed out by Mr. Stanton Coit, "The conscious fulfilment of duty is attended by a feeling of happiness, which sometimes takes the form of deep inward peace, and sometimes of gladness and exultation, like that of a victor." Thus the ancient heathen poet and the modern moralist, although separated by the vast ocean of sympathy which lies between the opposite poles of egotism and altruism, meet nevertheless on the common soil of a common human nature. Activity, then, carries with it its own reward; it is in itself an end; and education once almost exclusively directed to the immediate cultivation of the mind, is gradually extending to all the activities of the complex human being—the physical and moral as well as the intellectual.

She then gives the following as experimental proof of the truth of her theses: At the meeting of the British Association in 1879, Dr. Séguin read a paper entitled "The Training of an Idiotic Hand," in which are given the details of his developmental method of teaching in the case of an idiot boy. The training described was applied mainly to the hands, over which the feeble will of the child had almost no control. He was unable to put either his fingers or hands in any given required attitude, although movements of great rapidity and considerable force were involuntarily executed, mainly from the wrist. The sense of touch was almost wholly wanting. After a year's training (the detailed account of

which is most instructive) he is described as having learned to help and amuse himself, and to refrain from biting himself and from striking his friends, although the hands are still subject at times to involuntary movements. The sense of touch has developed to the degree of recognizing about one hundred objects by their shape and texture alone, without the aid of sight. He has also acquired consciousness of the ordinary variations of temperature of water, food, etc. He has been taught to recognize the typical geometrical forms, and to cut them out of paper. He has visited the florists daily, and learned to know and name about sixty different kinds of flowers, all fragrant, thus appealing to the brain through still another sense. This development of the special senses and of volition was accompanied by a marked decline not only of uncontrolled movements, but of outbursts of temper which had been conspicuous.

At the end of a year's training, concentrated mainly on the hands, the special training of the eyes was begun, the history of which is given in a second paper.

There was a lack of control over the movements of the eyes quite comparable to that which had existed in the case of the hands. The boy was unable voluntarily either to hold his eyes still, or to direct them toward any particular object—rapid oscillations alternating with periods of fixation upward and to one side. In the training of these refractory organs the improved hands were made to give most effective assistance. "What words cannot do," says Dr. Séguin, "the hand can; viz., it can present objects to the eye at the proper distance, at the proper opportunity, and with the proper degree of insistence and pertinacity, even following the eye in its wanderings till it has captured and captivated the regard, . . . keeping the eye at bay, or leading it away from its empty fixedness."

At the end of the second year of training, "the vibrations of the eye have diminished, his voluntary look has become more steady, and his automatic one less riveted." From the study of objects and movements this no longer idiotic boy was led on to the acquirement of language. At the beginning of training he could repeat only the last word that was said to him; at the end of the second year he had acquired an accurate though limited vocabulary. Five portraits of the child are given in the *Popular Science Monthly*, at ages from six months to nine years, and the gradual disappearance of the idiotic expression of the child's face, as shown in these, is most marked.

Corroborative testimony of equal or even greater importance may be found in a recent report of the New York State Reformatory at Elmira, to whose resident physician, Dr. Hamilton D. Wey, belongs the distinc-

tion of having proposed and carried out the details of an experiment for testing the effects of physical culture on the mental and moral capacities of an inferior order of adult criminals. Dr. Wey selected for this experiment twelve men, ranging from nineteen to twenty-nine years of age, five of whom had been convicted of burglary, four of grand larceny, and three of crimes against the person.

Three of them had been total-abstinence men, eight had indulged in alcoholic drinks occasionally and one habitually. Several of them confessed to intemperate parents; one had an insane and one an epileptic mother. Many of these men had faces indicative of criminal tendencies; the heads of two were suggestive of idiocy; and among the entire number there was not a face which did not express either mental hebetude or moral obliquity, or both combined.

During the previous two years these men had made no appreciable progress in school-work, seeming incapable of prolonged mental efforts. One of them could neither read nor write; another found great difficulty in doing either: and although four of them understood the steps necessary for working out a problem in long division, they could never obtain a correct answer, while the remaining eight were "stranded upon the shoals of rudimentary arithmetic from notation to simple division." The proposed test of the value of physical culture was of the severest possible kind.

The physical discipline to which they were subjected consisted in (1) hot baths—three weekly, the Turkish and common baths alternating; (2) massage—kneading of the muscles, passive motions of the joints, and friction of the entire surface; (3) physical exercise—manual drill, free gymnastics, and exercise with dumb-bells ranging progressively from three to eight pounds in weight; (4) the substitution of a special dietary for the regular prison fare. The experiment was continued during five months—long enough to demonstrate the value of the method, but not to determine the full measure of success probably attainable by these means. At the end of this period nine of the eleven men then living had risen from the third, or refractory, to the intermediate grade, the remaining two having merely maintained their original standing in this grade.

During the six months immediately preceding the experiment, the average marking for shop-work, school-work, and conduct had been forty-six per cent. During the experiment, the average for school-work, previously lowest of all, rose to seventy-four per cent., the conduct improving at about an equal rate. Shop-work was discontinued, as the special training was thought to secure enough muscular exercise. During the six months following the term of the experiment, the average marking

of the men in the three departments of shop-work, school-work, and conduct rose to seventy-one per cent., as compared with forty-six per cent. for the six months preceding the experiment. At the end of this period Dr. Wey reported that "although the men had been remanded to the former routine of prison life, mental development was still going on: six of the number had reached the first grade in school-work, and two of the remaining five had every prospect of soon doing so."

Physical improvement was marked; their skins had acquired the softness and smoothness of childhood (several having had some form of skin disease), and their biceps muscles had become worthy of the traditional blacksmith. Their former stooping attitude, slow movements, and shuffling gait had given place to an appearance of alertness and vigor; their faces also had developed an expression of comparative brightness and intelligence. In manual labor the advance was not so pronounced as in other directions, though improvement in this department was marked; but the stride in mental and moral development was almost beyond belief.

Inquiries extending over a period of forty years, made of about three hundred members of the Cambridge and Oxford university crews, instituted by Dr. MacLaren, director of the University Gymnasium at Oxford, have elicited facts which may be accepted as experimental evidence of the value of physical training in a class of cases in which the conditions of life are most favorable, hence affording a test from which practically every element except the purely muscular one is eliminated. The benefits experienced by the members of these crews are stated to be an increase of stamina, of energy, enterprise, and executive power, and of fortitude in endurance of trials, privations, and disappointments—"a goodly list of benefits bearing on the mental and moral as conspicuously as on the physical side of the question," says Dr. MacLaren; "for, in the struggle for existence, failure is more likely to result from inability to endure trials and disappointments than from merely physical weakness—the statistics of suicide bearing out this statement."

The testimony obtained from this source shows that the advantages of physical training are not limited to the idiotic, the ignorant, and the criminal classes, the conditions of whose lives have been especially unfavorable to a normal symmetrical development, but that they belong alike to all. This experimental evidence, having been drawn from observations on the extremes of human capacity and character (the young idiot, the adult criminal, and the university student), may be accepted as virtually covering the entire ground of human nature in its various phases, and therefore as conclusive of the *universal application of systematic physical culture in education.* It shows that in the

processes of mental and moral development the muscles as well as the purely sensory mechanisms play a conspicuous part; and while the period of growth is undoubtedly most favorable to this work, Dr. Wey's experiment shows that *even the adult brain and mind may be improved by the various procedures included under the head of physical culture.*

—*The Health Journal.*

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## RENTED HOUSES.

Quite a large number of people are obliged to live for part or all of their lives in rented houses, and it may be well to point out some of the commoner sanitary defects found in such houses.

An experienced renter will know that it is easier to secure changes before than after renting a house, and, if conditions detrimental to health are found which the owner of the house will not change, another house may be chosen.

It is very frequently the case, that, in selecting a house for rent, little or no attention will be given to its sanitary condition. The average renter looks to the number and size of the rooms, to some extent to the amount of light admitted to them, to the size of the lot, and to the condition of the outbuildings. He may perhaps look at the cellar, but is usually content to know there is one. If the house has plumbing fixtures, he will examine the bath-tub, note the existence of a water-closet, and then make up his mind as to whether or not he wants the house. If the house is in a good neighborhood, has ample closets and a big pantry, the feminine portion of the household will probably decide in favor of the house. Except as to the size of rooms and amount of light, nothing which might determine the healthfulness of the house has been considered, and these were looked into on account of comfort and not of health.

This carelessness in renting houses, due in great part to ignorance, often results most seriously, and many a life has been sacrificed which a thoughtful care might have saved.

We recall the following instance as coming under our observation:

A travelling man called us to see his child, which was ailing. His family consisted of wife and three children; and he had moved to his present home about two weeks before his child was taken sick.

The house he occupied had the reputation of being an unhealthful house, and he was so informed. He had moved into it without examining its sanitary condition. On inspection, it was found that the cellar and foundation walls were damp, a few pools of water standing in holes in the floor. Part of the back end of the cellar was walled off and con-

verted into a privy vault, which was enclosed under the kitchen roof, and opened into the kitchen by a loosely fitting door. The vault was cemented, but had only recently, before the family in question had moved in, been connected with the sewer. A six-inch sewer-pipe opened into the vault about eighteen inches above the bottom of the vault, and there was consequently always a collection of excremental matter in the vault. *There was no trap between this vault and the main sewer with which it was connected.*

The man was advised to vacate the house at once, but this he was unwilling to do. During the next year members of the family were constantly sick. The man's sister and sister-in-law, who visited him, had each a spell of sickness, and none escaped except the man himself, who was seldom at home. His wife had an abscess of the lower jaw, resulting in fistula, which for six months resisted all treatment. Finally, the amount of his doctor's bill convinced the man he would better move, and the family went into a new, dry, well built house. The fistula, which could not be closed, healed of itself in a very short time, and our professional visits to that family, during the next year, did not reach half a dozen.

It is not often that even the most careless or ignorant of men would move into a house like the one described; but there are many things to be avoided in selecting a dwelling-house, and to some of these we wish to call attention.

To commence with, the premises. Select as large a lot as possible, which is not wet in moderately dry weather. If the house is new, look to it that it is not built on "made" ground; such a site is usually unhealthful. Avoid very old houses where there is evidence of slops and wastes having been habitually thrown upon the ground near the house. In such cases there is great pollution of soil, and the drinking-water, if from a well, or the air which is drawn from the ground into the cellar, is in danger of contamination by foul gases and decomposing organic matter.

Next in order will be the well. if such is the source of drinking-water. The well should not be located near a privy vault or cesspool, especially if the latter is uncemented, and in a loose, porous soil. The limit of safety in this case is probably not less than seventy-five feet. Do not fall into the error a certain sanitary policeman recently committed. He had been sent to inspect the sanitary condition of a house in which a child was sick with diphtheria. He was evidently posted on the pollution of drinking-water, and gravely measured, with a tape line, the distance between the well and privy vault. This being considerable, was satisfactory, and he was going away, when his attention was called to a

vault in a neighbor's yard, just over the fence from the well. He had not thought of that. So, do not forget to look to the condition of neighboring premises, and the location of privy vaults, etc. The well should be protected by a good curbing from inflow of surface water. A very careful man would have a sample of the water examined. A few simple tests could be easily made by himself: but we cannot go into this here.

Next, inspect the cellar. This, for healthfulness, is one of the most important parts of the house. It should be clean, dry, well ventilated, and as light as possible. An impervious cellar floor is a great recommendation.

If there is a house drain connecting with a sewer or cesspool, ascertain, if possible, that it is not leaking and saturating the ground with filth.

Look to all traps, to be sure they are in good working order.

If there is a heating furnace in the basement, it will bear attention, and its capacity, source of pure air supply, etc., should be noted.

If possible, select a house in which all the living- and sleeping-rooms will receive direct sunshine during some part of the day. Rooms cannot be too light; and especially should the rooms which the women and children will have to occupy during the day be bright and cheerful.

As houses are ordinarily constructed in the North, an open fire-place is essential for good ventilation.

If the house contains plumbing fixtures, such as bath-tubs, water-closets, wash-stands, etc., special care will be required to be certain that these are all in a proper condition to prevent the entrance of air from the sewer—the so called sewer gas. By far the safest plan, where there are many such fixtures, is to have a reliable plumber inspect the plumbing, and insure it.

Other things of less importance could be mentioned; but if people renting houses would only look carefully into matters we have named, much sickness might be prevented.—*Monthly Sanitary Record.*

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## A Comic Cure for Insomnia.

A writer in *The Contemporary Review* mentions an incident bearing on this subject, which, amusing in itself, may perhaps suggest to others remedial measures in certain strange cases. He tells how an Irish servant girl saved her mistress from brain fever, after a week of insomnia, by grinding her to sleep with the coffee-mill. Irish instinctiveness had revealed to her that her mistress was suffering from the deprivation of a customary harsh sound at sleeping-time, through the absence from home for the first time in thirty years of a snoring husband. She procured artificially the familiar nasal rasping, and her homely remedy was successful.

# DOMESTIC VARIETIES.

## Employment for Young Women.

One of the most important changes in the social conditions of Americans within the last twenty years, and in the labor problems of this period, has come about by the advancement of young women to business positions formerly considered only within the capabilities of a man. Whether this is due to the large number of labor-saving machines invented in the time, which now allow a woman to select occupations which formerly required a man's physical strength and endurance, or to a spirit of independence that has come over them and has demanded recognition of their business faculties, or because of the fickleness of wealth and the sudden approaches of poverty in these days of Wall street brokers and oil wells, it is certainly true that young women are taking places with young men in many business relations; and there is passing away the foolish spirit of pride which kept many girls from joining the laboring class, and debarred them from pleasures available with a little sturdy independence and hard work. Not only are the folded hands of impoverished aristocracy looked upon with disfavor, but a young woman is now commended for seeking some employment when necessity does not demand it. The branches of employment for women are spreading out in all directions beyond the domestic lines of house-keeping and needle-work; business and medical colleges, art and law schools, are opening their doors to women, and are being honored by their graduates; and in the humbler positions of business and professional life, young women are proving that their minds are neither too shallow nor too dull to rank with their brothers in the world.

There are still many criticisms upon this custom, both as to the work produced by women, and the effect upon the workers themselves. It is claimed by some that a woman does the work before her and does it well, but is not anxious for improvements nor ambitious for promotion; and therefore, while her work is correct and painstaking, it lacks the push and vigor of a man's. The methods of working of an English clerk are said to differ greatly from those of a German. The Englishman works accurately and speedily; but the German asks why it is done so—why not some other way—what will come of it;—and of the two the German displays more practical wisdom when acting for himself. It is the lack of such interest that has caused this criticism of woman's labor. Too often it is dollars and cents that the laborer sees in all her work,

passing over the fact that it is the greater part of her life, and that what she does, not what she gets, should be her thought. Time will surely show that women can apply themselves to business and make a success of it, that their minds can grasp business ideas as quickly as the masculine mind, and that thoroughness and executive ability come with experience.

It has been said that work for the public in a store, an office, or a school-room takes away the refinement of a young girl, removes the feminine charm, and makes her masculine and often forward and coarse. To be sure, she must be brought in contact with the evil of the world as well as the good; she must in many situations serve sinners with saints;—but the sinner also strays into brown stone houses, and as often rides behind the coachman as handles the reins; and the nature that will imbibe only the coarse, degrading part of the life it meets in public service would as surely grow coarse and degraded though shielded by wealth and blue blood. There is an independence that one acquires when she can see the labor of her own hands, and turn over, with almost a miser's delight, the roll of bills that comes from it; there is a growing plainness and severity of gowns for business wear; there is perhaps an honest maintaining of equal rights and courtesies,—and these perhaps have given rise to the adjective masculine applied to our young women of to-day; but, ah! they are women still, with an eye for a bonnet, deft fingers for needle-work, and loving hearts and willing hands to make home the dearest spot on earth. It is still the woman that fills the position, not the position that holds the woman.

Many noble traits of character are developed by some practical use of time. It is not necessary for her to serve in a public position to gain these: there are many ways of employment at home which serve as well, if accompanied with system and thoroughness. There may be a younger brother, backward in school, who needs aid in his lessons; a sister, who would enjoy and learn music better from the older sister than from the music-teacher; a father, whose cares would be lightened by the quick thought and patient, studious mind of a daughter; and there is nothing more blessed for a young girl to busy herself with than "helping mother." But it is against the large class of young women, who, after finishing school, seem to be only waiting to have an opportunity to marry; who sew a little, paint a little, dabble in cooking, make calls, with no regularity nor definite purpose,—it is against these that protest is made. The mind that was trained to thoroughness and quick insight by the school-room, will easily rust out if allowed to lie idle; and the same care for its development must follow through life, with enough of the discipline of the school to push forward a lazy or check an impulsive disposition.

It was one of our brightest women who said, "Women seek and take too much advice."

It is not only the brilliant minds that must and will work, but the everyday common intellects that need this training and development. It occurs so often nowadays that a young girl is thrown upon her own resources, that it is essential not only that she be able and willing to support herself, but also that she have a practical knowledge of her powers and of the best use to which she can put them. Economy, generosity, and thrift are lessons best learned by spending money earned by one's self. You may be generous to all your friends with means furnished by another,—but it is when you see behind the shining silver a long row of figures, or a headache after a dull arithmetic class, that self creeps in. And another branch of selfishness is rooted out by working for others;—to make a success of labor for them, you must have their interests at heart as well as your own; and in this way thought and care for others will take the place of self. The authority which, though it be a silken band, is still around every girl that serves an employer, develops the quality of obedience; and what is harder to learn to say and more admirable to hear than the words, "I will"? There follows a long list of virtues equal to that of the Apostle Peter, adding diligence, meekness, patience, and charity, which will grow much faster and stronger in a young woman when somewhat away from home oversight where love tempers all discipline. And with this development of mind and character we are surely raising an army of young women, educated to obedience, thoroughness, quick discernment, careful thinking, and sound judgment,—noble women, with pure minds and large hearts.

## The Corset a Cause of Consumption.

The corset, with its inflexible stays and hour-glass shape, grasps the expanding lungs in their lower part like an iron vise and prevents their proper filling with air. The lungs are thus crowded up into the upper part of the chest, and pressed against the projecting edges of the first ribs, upon which they move to and fro with the act of breathing. The friction thus produced occasions a constant irritation of the upper portion of the lung, which induces a deposit of tuberculous matter, and the individual becomes a prey to that dread disease, consumption—a sacrifice to a practice as absurd as it is pernicious.

The lower part of the chest being narrowed, thus preventing proper expansion of the lungs, the amount of air inhaled is insufficient to properly purify the blood by removing from it the poisonous carbonic acid which gives to impure blood its dark color, and is so fatal to the life of all animals. In consequence of this defective purification of the blood,

the whole body suffers. None of the tissues are properly kept in repair. They are all poisoned. Particles of gross, carbonaceous matter are deposited in the skin, causing it to lose its healthy color, and acquire a dead, leathery appearance and a dusky hue. The delicate nerve tissues are poisoned, and the individual is tormented with "nerves," sleeplessness, and fits of melancholy. Continuous pressure upon these parts may cause such a degree of degeneration of the muscles of the chest as to seriously impair the breathing capacity. Unused muscles waste away, and when pressure is applied in addition, the wasting and degeneration become still more marked. This is exactly what happens with those who wear their clothing tight about the waist. — *Good Health.*

A lay writer in the *San Francisco Chronicle* pleasantly compares horse-doctors and "ordinary" doctors, rather to the disadvantage, in respect to lucidity of directions, of the latter, and adds,—

"You know how doctors make out prescriptions. They put on the bottle, "A teaspoonful three times a day." Now, naturally you have great respect for a doctor's instructions as long as you are sick, and you worry over that "three times a day." You try to divide the day into three parts, and fix a time at which you will take that medicine. You are busy, and you forget to take the second dose on time, and you have to go to bed before it seems to you natural to take the third dose. You get up in the middle of the night and take it. Then you remember when you wake in the morning that you took it some time in the night, and you did not look at the clock, and you feel either that it will do you no good, or that it will kill you if you take too much of it, or if you don't give one dose a reasonable time to act before you take down another. And you don't know when to stop, whether one bottle's enough, or whether two bottles are too much. If the prescription would tell you—— well, it would n't make much difference. You 'd get mixed up all the same. I like this Arizona horse-doctor's prescription. It is clear, lucid, unequivocal, even if it is badly spelled. It is here *verbatim et literatim:*

" 'One tabel spoon full for 3 days and leve of 3 days and repeat for 3 days and leve of for 3 days and repeat for 3 days. fead it on the Tung. Doe not Blankett too warm. fead soft fead.' "

AN AMUSEMENT. Put down the day of the month in which you were born; double it; add seven; multiply by fifty; add your age; subtract 365; multiply by 100; add the number of the month in which you were born (calling January 1, February 2, &c.); add 1,500. The first two figures of the result will give you the day of the month of your birth, the next two your age, and the last two the month in which you were born.—*Maude Dawson, Leroy, Ill.*

## Rules for Pleasant Lives.

A book published a year ago, "The Five Talents of a Woman," gave the following rules for beauty of expression, which the writer of the book claimed was much more attractive than beauty of features:

1. Learn to govern yourselves, and to be gentle and patient.
2. Guard your tempers, especially in seasons of ill-health, irritation, and trouble, and soften them by prayer and a sense of your own shortcomings and errors.
3. Never speak or act in anger until you have prayed over your words or acts.
4. Remember that, valuable as is the gift of speech, silence is often more valuable.
5. Do not expect too much from others, but forbear and forgive, as you desire forbearance and forgiveness yourself.
6. Never retort a sharp or angry word. It is the second word that makes the quarrel.
7. Beware of the first disagreement.
8. Learn to speak in a gentle tone of voice.
9. Learn to say kind and pleasant things whenever opportunity offers.
10. Study the characters of each, and sympathize with all in their troubles, however small.
11. Do not neglect little things, if they can affect the comfort of others in the smallest degree.
12. Avoid moods and pets and fits of sulkiness.
13. Learn to deny yourself and prefer others.
14. Beware of meddlers and tale-bearers.
15. Never charge a bad motive if a good one is conceivable.
16. Be gentle and firm with children.

Story told by "Atlas" in the world: "A young lady was sitting with a gallant captain in a charmingly decorated recess. On her knee was a diminutive niece, placed there *pour les convenances*. In the adjoining room, with the door open, were the rest of the company. Says the little niece, in a jealous and very audible voice, 'Auntie, kiss me too.' I leave you to imagine what had just happened. 'You should say *twice*, Ethel dear; two is not grammar,' was the immediate rejoinder. Clever girl, that!"

Humility is most serviceable as an undergarment, and should never be worn as an overcoat.—*Century "Bric-a-Brac."*

## CONTAGIOUS AND INFECTIOUS DISEASES IN NEW HAMPSHIRE.

The following contagious and infectious diseases were reported to the State Board of Health for the month of September:

Diphtheria: Keene, 25 cases. The local board of health says,—"These cases have been investigated by the board, and in many cases the sanitary surroundings have been improved by ordering connections with the public sewer, use of disinfectants, isolation of the sick, etc." Manchester, 10; Portsmouth (for August and September) 8; Andover, 5; Newport, 5; Goffstown, 2; Claremont, Conway, Rye, and Amherst, 1 each.

Scarlet-fever: Manchester, 12; Concord, 5; Nashua, 1; Rochester, 1; Tilton, several cases which were not reported by the town authorities.

Typhoid fever: Manchester, 14: Laconia, 5; Rindge, 4; Newport, 4; Nashua, 4; Hudson, 4; Bradford, 3; Keene, 3; Portsmouth, 2; Hooksett, 2; Loudon, 2; Barrington, 2; Concord, Wolfeborough, Greenland, Rochester, and Sandwich, 1 each.

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## PUBLICATIONS RECEIVED.

*Fourth Annual Report* of the State Board of Health of the State of Maine, for the fiscal year ending December 31, 1888. This report is of great value, and does credit to the board, and especially to its efficient secretary, Dr. A. G. Young. Its special papers upon water analysis, consumption, diphtheria, pneumonia, typhoid fever, and light gymnastics for schools, make the volume of especial value to sanitarians, as well as the public.

*The Merrimack Journal*, Franklin Falls, N. H. Published weekly at $1.25 per year. A well printed and well edited newspaper.

*The Writer*. A monthly magazine to interest and help all literary workers. Boston, Mass.: One number, 10 cents; one year, $1.

*The Penny Post*. Published daily at Portsmouth, N. H., at $3 per year. Devoted to general and local news.

*The Consumer's Journal*. New York. "Devoted to the welfare and best interests of the home." An excellent journal, published monthly at $1 per year.

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The time will come when an epidemic of disease in a place will be looked upon as a disgrace to the community, as great, if not greater, than would be a series of robberies, or rapes, or of any other crime.

—*The Medical Record* (Aug. 31, 1889).

THE

# SANITARY VOLUNTEER

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## SANITARY AND OTHER NOTES.

We have received the first number of the *Health Monitor*, a monthly sanitary journal published at Denver, Col. Its prospectus says,—

"It is designed to be a first class family paper, devoted to all that pertains to health. It is not to be run in the interest of any particular section or resort, but in the interest of its readers. It is a paper that any honest physician can hand to his patients, with the assurance that it will teach what they need to know."

If the succeeding issues are as good as its first, its declaration will certainly be fulfilled. We heartily welcome it to the increasing ranks of sanitary publications. Its subscription price is one dollar per year.

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Diphtheria prevails in several localities in this state. It is a disease that should be promptly isolated, and restrictive measures thoroughly enforced. The disease is frequently spread, and lives lost, wholly through a neglect of proper precautions. The state board of health will mail a pamphlet to any address, upon application, relating to the prevention and restriction of diphtheria.

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A writer in the *Practitioner* suggests the following simple method of constructing an inhaler:

Coil a piece of paper into the shape of a cigarette, and fix it with gum. Then insert into one end a small uncompressed piece of absorbent cotton-wool, upon which a drop or two of the desired medicament has been poured. Air is now drawn through the tube by the patient, who holds the other end between his lips. This plan is by many patients, especially by men, preferred to the use of any form of respirator, or to inhalations mingled with steam. These last, moreover, have a relaxing effect in some atonic conditions of the throat.

Such remedies as compound tincture of benzoine, methal, oil of eucalyptus, etc., may be used with this device. Oil of peppermint was found to give great satisfaction inhaled in this manner, in a case of pulmonary consumption.

The ice crop will soon be a subject of attention by those engaged in that industry, and it should be remembered that ice ought never to be taken from a source where the water is unsuitable for drinking purposes. It has been proven that disease germs will survive freezing for months. The dealer in ice should bear these facts in mind, and the public should decline to purchase ice from any supply that is not above the suspicion of pollution.

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In France, a secret remedy or proprietary medicine, before it is offered for sale, says the *Health Monitor*, must be submitted to a committee of the Academie de Medicine, which condemns the article or approves it, and fixes the highest price at which it may be sold. This committee has the formula and the process by which it is prepared submitted to it, and they subject each preparation to a careful scrutiny. Thus the people are guarded from the imposter who would ruin their bodies and steal their money. In this country we are behind in these things, although effort is now being made in several of the states to pass similar laws.

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Regarding the deleterious effects of tobacco on the youth, the *Health Journal* says that in an experimental observation of thirty-eight boys of all classes of society and of average health, who had been using tobacco for periods ranging from two months to two years, twenty-seven showed severe injury to the constitution and insufficient growth: thirty-two showed the existence of irregularities of the heart's action, disordered stomach, cough, and a craving for alcohol: thirteen had intermittency of the pulse: and one had consumption. After they abandoned the use of tobacco, within six months one half were free from all their former symptoms, and the remainder had recovered by the end of the year.

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Philadelphian: I wish you, sir, to observe the color of that water I have just drawn from the pipes. Councilman: Oh, that is all right. The color is not due to the impurities, but to the air in the water. Philadelphian: "Air?" Councilman: "Yes. You see, as the limpid streams which enter the Schuylkill go leaping, bubbling, and singing through their mountain glens, the soft, brownish Indian summer atmosphere permeates the liquid, and gives it that pleasing, poetic, terra-cotta hue."

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The state board of health has directed the selectmen of Sunapee, New London, and Newbury to prohibit residents upon the shores of Sunapee lake from draining their premises into this beautiful sheet of

water. This action was deemed necessary by reason of the fact that the village of Sunapee is now being supplied with water for domestic uses from this lake. This fact was presented to the state board in a petition from the water-takers asking for protection from the dangers to health that would exist if cottagers were allowed to discharge sewage into the lake.

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The obtundity of some minds to well demonstrated sanitary truths is something inexplicable. To illustrate: We know of a family, all of whom have suffered for several years from the use of polluted well-water. They have been repeatedly told that the water was responsible for their poor health, but used it just the same. They shut up the house once or twice a year and go away for a fortnight, returning wonderfully improved in health, soon to relapse into their former state of "poor health" through the use of the polluted well-water. Recently, upon the urgent request of thoughtful relatives, they have had the water examined, and it showed a high degree of pollution from both sink-drain and privy. They have now abandoned the use of this water, have greatly improved in health, and are themselves preaching the dangers of water pollution to their neighbors. All this after the same dangers had been pointed out to them for more than ten years with no impression whatever. Sanitarians have learned that if there is anything on earth the average family will defend, till perhaps it destroys them all, it is the family well. It is a pleasure to see that this blind faith is being boldly shaken, and that the dangerous character of shallow wells is being more generally recognized than heretofore.

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## A. P. H. A. NOTES.

The recent meeting of the American Public Health Association, held at Brooklyn, N. Y., was the largest and perhaps the most important ever held. The character of the papers and discussions was of a very high order. Nearly every state in the Union, the Army, Navy, U. S. Marine Hospital Service, Dominion of Canada, and the Provinces, were represented.

* * *

Dr. Henry B. Baker, secretary of the Michigan State Board of Health, was elected president for the ensuing year. No better man could have been selected. Dr. Baker has for many years been an able and hard working sanitarian, and his influence has been felt far beyond the borders of his own state, where he has done so much for the public good. He will reflect honor and credit upon this great public health association, which has wisely seen fit to honor him.

Among the several interesting subjects considered were two of especial importance, to wit,—on the "Prevention of Pulmonary Consumption" and on the "Causes of Infant Mortality." Three papers were read on each subject, and profitable discussions followed. Opinions, so far as expressed, were unanimous in the belief that pulmonary consumption is a germ disease, and that it is communicable from person to person and from animals to man, and that it can be largely prevented by the use of proper precautions.

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The subject of infant mortality aroused so much interest that a special committee, with Dr. Jerome Walker, of Brooklyn, N. Y., as chairman, was appointed to prepare a report upon this subject, to be presented at the next meeting of the association.

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Likewise a special committee was appointed to consider and report upon diphtheria. The committee is an able one, and consists of Drs. G. C. Ashmun, Cleveland, Ohio; F. H. Colton, Brooklyn, N. Y.; A. W. Cantwell, Davenport, Iowa; P. H. Bryce, Toronto, Ont.; William T. Councilman, Baltimore, Md. These gentlemen are all eminent in the profession, and an exhaustive and valuable report is to be expected.

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Probably no paper attracted more attention or deeper interest than that presented by Edward Atkinson, LL. D., on "The Art of Cooking." This paper was an entirely new departure in methods and means of cooking. Stoves, invented and designed by Mr. Atkinson, were used, and sufficient food, of many kinds, to give several hundred persons a taste, was cooked by the heat of ordinary lamps in the presence of the audience. The demonstration of Mr. Atkinson's methods was complete, and, to nearly all present, a perfect revelation. The superiority of this method over that in common use consists in less labor, better cooking, and a lessened expense for fuel.

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The valuable aid of the stereopticon in illustrating technical and scientific subjects was never better demonstrated than at this meeting, it being employed in no less than five papers. It seems to be the only method by which germ life can be graphically illustrated to an audience, and no amount of verbal description could convey such accurate knowledge of the general nature of the various microbes, both dangerous and harmless, that are known to biologists. This apparatus is of incomparable value in illustrating both popular and scientific subjects.

The next meeting of the Association will be held at Charleston, S. C., in November, 1890. Dr. H. B. Horlbeck, the cultured and courteous

quarantine officer of that port, is chairman of the local committee of arrangements.

Besides those subjects which are to be considered and reported upon by the several committees, the following topics for papers have been selected:

1. Sanitary Construction in House Architecture,—(a) heating; (b) lighting; (c) drainage; (d) ventilation.
2. Sewage Disposal.
3. Maritime Sanitation at Ports of Arrival.
4. The Prevention and Restriction of Tuberculosis.
5. Isolation Hospitals for Infectious and Contagious Diseases.
6. Establishments in Favorable Climates for Persons having Tuberculous Predispositions,—(a) Schools for Children and Adolescents; (b) Sanatoria; (c) Permanent Residence.

* * *

The members of the Association are under many obligations to the very able and efficient committee of arrangements. Every detail essential to the success of the meeting, besides many social and personal courtesies, was provided for. The Brooklyn meeting will long be held in pleasant memory.

## THE COMING TABLE OIL.

The use of cotton seed oil as a substitute for olive oil seems to be largely on the increase in this country. For a long time many persons have used it for table purposes when neatly labelled as "*Huile d'Olive*," without a suspicion that it was anything but the best quality of olive oil. We do not believe in such a fraudulent enforcement of the use of cotton seed oil, but there is no reason why this valuable food product should not be universally adopted for table use under its proper name. Indeed, the refined oil is being quite extensively used for table purposes, and with the greatest satisfaction. It is used in the preparation of the most delicious and delicate salads, and it is rapidly finding its way into the culinary departments of many households.

In a paper read before The American Public Health Association some four or five years ago, Prof. Monroe said that the chemical composition of cotton oil revealed nothing that interdicted its use as a food, and, if experience proved it acceptable as such, it would be a product of great value to the American people. The proof has been presented. We have in this article a substitute for olive oil, equally as good, and at a price which brings its use within the reach of many who cannot afford to purchase genuine olive oil. So valuable an American product as this ought to be found in every grocery store, neatly bottled, and labelled with its

true name, and for sale at a price which, with a reasonable margin for profit, would place it far below the cost of olive oil.

We predict that its future use as a table oil will be extensive and satisfactory.

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## OUR INSANE POOR.

The wisdom of the last legislature in creating a board of commissioners of lunacy, with power to transfer to The New Hampshire Asylum for the Insane, for remedial treatment, any indigent insane person whom the board regarded as offering any hope of being improved, has already been demonstrated.

The board has thus far examined over two hundred dependent insane persons, most of whom were confined at the county asylums or almshouses without any curative treatment whatever, and have transferred over thirty to the state asylum for treatment. Sufficient time has not yet elapsed to say with any degree of certainty what permanent results may be accomplished: but some of the patients thus transferred are showing a very marked and hopeful improvement. Two or three of the men, who were formerly kept locked up under the closest restraint, are now doing good service in a thoroughly intelligent way in the workshop: while some of the women, who were likewise kept under lock and key in their room, are now given very large liberties, and show an improvement that is decidedly marked.

There is a too common impression that a place of detention, with plenty of food and clothing, is all that it is necessary to provide for an insane person. There is no idea that could be further from the truth. Among the most essential and potent means of cure are suitable attendants, mental diversion, pleasant surroundings, exercise, riding, rowing, cultivating flowers, games, plays, concerts,—in fact, something to divert the mind into new and congenial channels. All these things and many more are to be found at the state asylum, where they are applied under the direction of a corps of skilled physicians and attendants. In contrast with this institution, the county asylums and almshouses are only places of detention, although it is true that at the latter there are sometimes cases of spontaneous recovery.

Several of the counties are well equipped for the care of a certain class of the chronic insane: but no case in which there is any probability that remedial treatment will be of any benefit should ever be confined at the county institutions.

New Hampshire has hitherto been inexcusably indifferent to the care of her indigent insane, and has, we regret to say, to a very great extent

merited the severe criticism that has been given her from various sources; but we hope that the work now commenced by the commissioners of lunacy will receive the unsparing endorsement of the people, and eventually result in caring for the insane poor in a manner commensurate with their needs and requirements.

The law under which this work is being carried out is entitled "An Act to Improve the Condition of the Indigent Insane," and was approved July 30. The following is the act, with the exception of the last two sections, which are not of public interest:

SECTION 1. All persons deprived of their liberty in this state, by being committed to custody as insane, shall be the wards of the state and subject to state supervision.

SEC. 2. All the laws relative to the commitment of an insane person to The New Hampshire Asylum for the Insane shall be applicable to and shall govern the commitment of an insane person to all asylums or other places in this state where insane persons are confined.

SEC. 3. The state board of health shall constitute a board of commissioners of lunacy, and the said board shall elect one of its number secretary, who shall keep on file a correct record of all its proceedings.

SEC. 4. The board shall make thorough visitations and inspections as often as once in four months, by one or more of its members, of all asylums and other institutions for insane persons in the state; and such visitations shall be without previous notice. The board shall examine into the care and treatment of the insane; into the sanitary condition of each asylum or institution; and into all matters relating to the health, mental condition, and general welfare of the inmates;—and said board shall have the power to order the removal, for remedial treatment, of any insane person supported in whole or in part by any county or town in this state, to The New Hampshire Asylum for the Insane, if in the judgment of the board such treatment is required; and said person, while under remedial treatment at the state asylum, shall be supported at the expense of the state; provided, however, that when the need of remedial treatment shall cease, said board shall notify the county or town liable for support of such inmate, and if longer continued at the said asylum it shall be at the expense of said county or town.

SEC. 5. Said board shall keep a correct record of the number of commitments, discharges, and deaths at each asylum, institution, or other place of detention, their age, sex, and nationality, and shall report the same annually to the governor and council, with any other matter or recommendations which in their judgment are important.

SEC. 6. No insane person other than a pauper shall be admitted to any county asylum, and the superintendent of every asylum or other place in

this state where insane persons are confined, shall, within three days after the commitment of any person, notify the board of such commitment, upon blanks furnished for that purpose; and the said superintendent shall at all times furnish such information regarding the insane in his charge as the said board may request.

SEC. 7. Any insane person who shall have been an inmate of The New Hampshire Asylum for the Insane for the period of twenty years, and supported during said term in whole or in part otherwise than by the town or county chargeable therewith, and who has no means of support and no relatives of sufficient ability chargeable therewith, and who cannot properly be discharged from said asylum, shall be supported therein at the expense of the state.

Although the provisions of the above act are plain, a recapitulation of some of the points embodied in it may be stated as follows:

1. The state has assumed supervision over all the insane committed to custody and deprived of their liberty.

2. A regular form of commitment must be issued in the case of every insane person, whether a pauper or not, before committing the said person to custody at any asylum, almshouse, or other place of detention in the state. While it may be a matter of some expense to town and county authorities to obtain the proper form of commitment, as is hereafter required in all cases, the pecuniary advantage which such towns and counties will receive in the case of those requiring remedial treatment will undoubtedly far overbalance the slight extra expense of the commitment.

3. The Board of Commissioners of Lunacy will make frequent inspections of all places where insane persons are confined, and have authority to order the removal of any indigent insane person to The New Hampshire Asylum for the Insane for remedial treatment, the state paying the expense of such treatment.

4. No county almshouse or asylum can hereafter admit any insane person other than a pauper.

5. Each superintendent or person in charge of every asylum or other place where insane persons are confined must render such report to the board of commissioners of lunacy as may be called for.

Town and county authorities, supporting or assisting in the support of any insane person not confined at the county almshouse or asylum, are requested to report all such cases to the board at once, and state aid will be given in such instances as the board may direct, after an investigation of the circumstances.

It has long been a reproach upon the name of the state that New

Hampshire has never exercised that care in relation to its insane which the common instincts of humanity would seem to have long ago suggested. Nearly all the other states in the Union have salutary laws relating to their insane, both indigent and otherwise. It is the purpose of this law to see that our insane have extended to them not only the means for recovery in such cases as are curable, but that their general welfare shall be looked after and assured by the state, which is far better able to guarantee such care and protection than the individual town or county. It is to be hoped that all who have anything to do with our insane will unite with the board in effectually carrying out the provisions of this law for the very best interests of this unfortunate class.

## SUNSHINE.

It is a known fact that a potato, placed in a warm cellar with but a single window, will sprout, and that the sprout will creep along the ground until it reaches the window, when it will make directly for the same, and continue to grow in that direction so long as it can support itself. House-plants instinctively turn their leaves toward the windows, thirsty for sunlight. A running vine planted in a shady locality seems almost to possess intelligence in creeping around where the rays of the sun may fall upon it. Now, shall not mankind be as wise as the plant, or as sagacious as the potato?

A tadpole, confined in darkness, would never become a frog; an infant, being deprived of heaven's free light, will grow into a shapeless idiot instead of a beautiful and responsible being. Hence, in the deep, dark gorges and ravines of the Swiss Valois, where the *direct* sunshine never reaches, the hideous prevalence of idiocy startles the traveller. It is a strange, melancholy idiocy. Many of the citizens are incapable of articulate speech. Some are deaf; some are blind; some labor under all these misfortunes; and all are misshapen in every part of the body. I believe there is, in all places, a marked difference in the healthfulness of houses depending upon their aspect with regard to the sun, and those are decidedly the most healthful, other things being equal, in which all the rooms are, during some part of the day, fully exposed to the direct light.

Epidemics attack inhabitants on the shady side of the street, and totally exempt those on the other; and even in epidemics such as ague, the morbid influence is often thus partial in its labors.

One of our journals, commenting upon the healing influence of light, remarks that "Sir James Wylie, late physician to the emperor of

Russia, attentively studied the effects of light as a curative agent in the hospitals of St. Petersburg; and he discovered that the number of patients who were cured in rooms properly lighted was four times greater than that of those confined in dark rooms. This led to a complete reform in lighting the hospitals of Russia, and with the most beneficial results."

In all cities visited by the cholera, it was universally found that the greatest number of deaths took place in narrow streets, and on the sides of those having a northern exposure, where the salutary beams of the sun were excluded.

The inhabitants of the southern slopes of mountains are better developed and more healthy than those who live on the northern sides; while those who dwell in secluded valleys are generally subject to peculiar diseases and deformities.

The different results above mentioned are due to the agency of light. without a full supply of which. plants and animals maintain but a sickly and feeble existence. Eminent physicians have observed that partially deformed children have been restored by exposure to the sun and the open air. Scrofula is most prevalent among the children of the poor in crowded cities;—this is attributed, by many persons, to their living in dark and confined houses, such diseases being most common among those residing in underground tenements. In scrofulous affections and bodily deformities, Dr. Edwards advises isolation in the open air, and nudity where it would not be incompatible with comfort, as calculated to restore the sufferer. People having a consumptive diathesis, or those having a consumptive ancestry, should pay particular attention in the choice of a location for a dwelling, to select one which has a southern exposure. Sick people are too apt to be regardless of their surroundings, and depend entirely upon their physician to cure them.

A thoughtful man, when he is affected with illness, will seek to discover the cause, and also the influences surrounding him, which may aggravate the complaint. On making an investigation, he may not only find that his rooms are not well ventilated, that the location is not free from swampy dampness, but that his dwelling is so situated behind hills, or under so much shade, as to entirely shut him in from the light of the sun. Discovering these disadvantageous conditions, he should at any sacrifice of business or property, if he value health and life, betake himself to some spot where he may secure all of nature's agencies for his recovery. Occasionally, some one daily exposed to the sun, in the heat of summer, gets an over-dose of the curative agent, and has an attack of sun-stroke. All active medicines are injurious taken in over-doses; but sometimes the sun's heat is censured for what bad habits have induced.

If a man eats and drinks excessively, or sets his blood on fire with "camphene whiskey," he is more liable than anybody else to have sun-stroke.

Some medicines become injurious by mixing, and it could hardly be supposed that the pure sunlight, fresh from God's laboratory, would mix well with the vile drinks of our low groggeries. As, however, the lightnings of heaven sometimes kill innocent people, continuous exposure to a summer's sun may, in some cases, strike down sober, temperate men. To avoid this, those who are compelled to work in the sunlight, during the hottest days of the year, would do well to wear a wet napkin or handkerchief on the top of the head, under the hat. The farmer or gardener has something still better in the cabbage leaf, which may be dipped in water and worn in the same way.

Let no one, however, be afraid of sunlight because of occasional cases of sun-stroke. If statistics could be obtained regarding those who die directly or indirectly from want of sunshine, we should find that this class would number a thousand to one who dies of an overdose. People in the country are apt to bury themselves beneath the foliage of shrubs and trees, and bid defiance to the few rays that do penetrate, by closing the green blinds which shelter the parlor windows. Mechanics and a great many of the business men in cities are contented to pursue their avocations all day by gas-light. There is an office in New York city, where, it is said, the windows are so shut in by its contiguity to another building, that the sunlight never enters it; and that every one who has occupied it for the past ten or fifteen years died of consumption. People who break away from their business for summer recreation, and make tours to the watering-places, think that they derive great advantage from change of air. It is true that they do. The qualities of the air are greatly modified and affected by the geological formations beneath the surface, and the vegetable products which present themselves above; so that one cannot breath the air of any of these localities without extracting certain properties which the system requires. In this way, change of air frequently proves highly beneficial; but, in many of these cases, benefits are attributed to this cause when they are more greatly due to exposure to sunlight. When people allow the sun to paint their faces brown, torpid livers are less liable to paint them yellow.

W. JOSLYN NYE.

## THE NECESSITY FOR A MORE RIGOROUS INSPECTION OF MEAT-PRODUCING ANIMALS AT THE TIME OF SLAUGHTER. [1]

D. E. SALMON, D. V. M., CHIEF OF THE BUREAU OF ANIMAL INDUSTRY, WASHINGTON, D. C.

The intimate relation which exists between the diseases of animals and those of mankind is being more clearly recognized, as the nature and origin of communicable maladies are more closely studied. The inoculability of bovine variola upon the human species, and its wonderful effects in conferring immunity from small-pox, is an illustration of this, long admitted, and which we all have had occasion to observe. The contraction of anthrax or malignant pustule, by man, from animals affected with this disease, of trichinosis by eating trichinous pork, of tape-worm from consuming the flesh of animals infested with this parasite, of glanders from coming in contact with glandered horses, are all examples which show the necessity of protecting our human population from the animal and vegetable parasites which may inhabit the bodies of our domesticated animals. More recently, we have seen the demonstration that tuberculosis, the most common and fatal of all the affections of mankind, is a parasitic disease, and one which affects animals as well as men; that the parasite found in tuberculous animals is morphologically, and probably in all other respects, identical with the parasite found in tuberculous men; that the disease is communicable from animal to animal, and from man to animals. If it has not been proved that this disease may be communicated from animals to man, it is undoubtedly because we are not able to make the experiments required for a scientific demonstration; but the probability is so great, that it is the duty of sanitarians to accept this mode of origin of human tuberculosis as a fact no longer to be ignored.

There may be diseases of man that are derived from animals, the origin of which has not yet been recognized, and which will be brought out by the investigations of the future; but whether there are or are not, the clear connection in the maladies referred to should be enough to interest all sanitarians in the efforts to eradicate the plagues of domesticated animals, and to prevent the carcasses of those that are affected by them from being used for human food. This interest, which is common to those charged with the duty of protecting the health of people and to those who guard the health of animals, leads me to ask your attention more directly to the question of slaughter-house inspection than I have ventured to do at previous meetings.

[1] Read before the American Public Health Association, October 25, 1889.

The present method by which the animals of nearly the whole country are gathered together at a few points for slaughter, while it is objectionable for some reasons, is the ideal plan where a cheap and thorough inspection is to be made. Long before dressed beef was shipped in refrigerator cars, the sanitarian saw the desirability, in fact the absolute necessity, of lessening the number of slaughter-houses before any systematic and thorough plan of inspection could be adopted. Now that the business men themselves have made this concentration, the time has come to take advantage of the favorable conditions, and obtain an inspection which shall, so far as possible, protect the consumer of meats from the diseases which they are liable to convey.

It is remarkable, after all there has been said in the last half dozen years about the dangers of contracting tuberculosis from eating the flesh of cattle affected with this disease, that there are few, if any, places in this country where animals are properly inspected at the time of slaughter. It is almost unnecessary to add, that those affected with tuberculosis are not discovered, and that consequently the carcasses are not condemned. This disease is apparently becoming more prevalent among the cattle of our country, and its effects upon consumers can no longer be overlooked.

The kind of inspection that is made is also a matter of considerable importance. An inspector should know the nature of the more common lesions which are found in slaughtered animals. He should certainly know a tubercle and a tape-worm cyst when he sees them, but some inspectors that we meet are not so well educated as this. With inspectors ever so competent, the inspection is useless unless properly performed. No man can look at a bunch of cattle, as they stand in the stock-pens, and say that they are all healthy and fit for food. Nor yet can he glance over the carcasses after slaughter, and with any certainty find those which should be condemned. He should be present at the time of slaughter, and carefully examine the viscera of each animal.

There are few who realize the number of seriously diseased animals which are slaughtered for food. I presume our butchers are no worse than those of other parts of the world, and I see no reason for believing that they are any better. The control which The Bureau of Animal Industry has exercised over the cattle trade during the effort to eradicate bovine pleuro-pneumonia has given facilities for learning many things which previous to that time were only suspected. One of the things which we learned was, that there are slaughter-houses in all cities in which our work has been carried on where the worst diseased cows could be taken and slaughtered, and the carcasses disposed of for food. Nor were the cases exceptional where this was done. On the other hand,

it was exceptional for many of the owners of affected herds to allow an animal to die of the disease. They were taken to the slaughter-house before the fatal period arrived. What was true of pleuro-pneumonia in this respect, is true of tuberculosis and other diseases.

This condition of affairs is not a credit to the intelligence and civilization of the country. With a population of sixty-six millions, and a death-rate of not less than 165,000 per annum from tuberculosis alone, we should adopt more rigorous measures to maintain the healthfulness of our food-supply. If it cannot be made impossible for animals affected with serious and dangerous diseases to be slaughtered and their carcasses sold for food, such regulations should be adopted as will, at least, make this of rare occurrence.

The commercial reason is one which should not be left entirely out of consideration, even before this body, which is primarily interested in the question simply in its effects upon the public health. We all know that there are sometimes things which we think ought to be done, and yet which it is inexpedient to do. And so, before undertaking any great reform, we generally ask ourselves if the times are ripe for such action. Otherwise we may find ourselves unsupported, and fail ignominiously. In the present instance, the restrictions which have been put upon our foreign trade in live animals and meat products because of animal diseases; the total prohibition of such trade, which is from time to time threatened because of unfounded rumors of disease which reach foreign governments: and, finally, the agitation for state inspection laws,—have prepared the way, until even some of the large packers themselves are now asking for inspection. It certainly appears at present as if there would be little, if any, opposition to a national inspection law, under which the healthfulness of the meats that go into inter-state and foreign commerce could be guaranteed.

Such an inspection would also be of great value to the country because of the facilities it would give for discovering at an early period outbreaks of dangerous diseases among our meat-producing animals. It is impossible to maintain an inspection over any considerable portion of our country that is sufficiently thorough and frequent to guard against the introduction and spread of the worst forms of animal plagues. But with slaughter-house inspections at the great packing centres, no communicable disease could exist for any considerable period without being discovered. We see an example of this in the statement recently made by the English authorities, that they have discovered contagious pleuro-pneumonia in steers which came from our Western states. According to the best information in the possession of our government, this disease does not exist in that section of the country. No doubt the English

have found lesions which they attribute to that disease; and, as they inspect a portion of our beef cattle at slaughter, and we inspect none of them, it is a difficult matter for us to contradict their statements, or to show that they are mistaken in their opinions.

There are, then, three very important reasons why we should have a careful inspection of our meat-producing animals at the time of slaughter: 1. To protect the health of our citizens. 2. To maintain the reputation of our meats in home and foreign markets. 3. To discover communicable diseases of animals before they have spread beyond easy control.

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## HAPPY OLD AGE.

Perhaps the ambition of every young man and woman, and the earnest wish of all parents for their children, is, that they may live to a happy old age. And yet how few comparatively realize that wish! The great majority, perhaps four fifths, of the human family, never reach three score years and ten. Of this small number, to how few these advanced years bring aught but "labor and sorrow."

And yet we believe that a very much larger number should live to a *good* old age, that far too few die under seventy, and far too few who reach seventy and beyond are as cheerful and sunshiny as they should be. One of the saddest sights perhaps to be seen is an old man or woman in whom the milk of human kindness has turned to bitter milk—has soured.

There are many, many causes that lead to early deaths. The sins of parents through laws of heredity; the perils of childhood, such as infectious diseases, improper food, insufficient clothing, want of healthy and nutritious food, unhealthy surroundings, and the dangers of ill ventilated houses and school-rooms.

Then in maturer years the many reckless risks taken, the sowing of "wild oats," dissipation, fast living, dangerous occupations, the greed for gain, all contribute largely to the premature loss of life. When life is prolonged in adverse circumstances, it is too often with a heritage of aches and pains, poor health and infirmity, that make the possessor miserable, and long life instead of a blessing a curse.

Nothing will so contribute to the attainment of old age, and a happy old age at that, as early and faithful obedience to the laws of health, and the consciousness of a well spent life. Riches and old age do not insure happiness, neither do poverty and old age always produce misery.

The happiest old people we have ever seen are the healthiest and the most benevolent. Selfishness is not and never can be compatible with

happinesss. Given health, or even in the want of it, the consciousness of having lived a life of noble deeds will always be a solace and a source of joy to the aged.

Hence, to reach a happy old age, the parent should plan for it for the child; should early teach not only the possibility and desirability of such an experience, the deeds and course of life that prevent it, but the only and sure road to this enviable condition. When the laws of health are trampled under foot in early life, if life is not forfeited at once as the penalty, the infraction will have to be condoned for later in life. These laws are as inexorable as the laws of the universe, and their violation is sure to be followed, sooner or later, by punishment.

It is the duty—the imperative duty—of all to let in all the sunshine possible upon the lives of those about us. Moral and material sunshine, in all the stages of life, conduce to health and happiness, and to a good, ripe old age.—*Monthly Bulletin, Iowa State Board of Health.*

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## VICARIOUS DIGESTION AND THE INFLUENCE OF FOOD.

A recent address on dietetics, by Dr. E. A. Wood, concludes as follows: "Our teeth are going because there is no longer need of that vigorous mastication peculiar to an age of crude cookery, and, if we persist in carrying vicarious digestion to the extent threatened, the stomach will lose its function and waste away toward the state of a rudimentary organ. The only way to keep the stomach strong is to force it to perform its legitimate work.

"Vicarious digestion may become a habit if indulged in for too long a time; the papoid habit may become as enslaving and as destructive as the opium habit. The tissues will starve on cells that enter over the wall instead of by the appointed portals of vital action. Such nutrition does not stay, the puny cells have not received the stamp of genuineness, and every emunctory is up in arms to turn the rascals out.

"Food and drinks, feeding and drinking, would seem to exert a wonderful influence over the habits of thought, the customs and manners, of races of men, and their diseases also. By searching we might find that the egotism, conservatism, and tenaciousness of the Englishman are as much the results of his beef and ale as is his gout; that the sparkling *bonhomie* of the Frenchman comes from his dainty *cuisine* and bubbling champagne, as do also his mercurial disposition and his passionate life; that the maccaroni and fortified wines bestow song and art on the Italian, as do beer and *sauerkraut* stamp solidity and patriotism on the German. America, ever able to give the world a lesson, contributes rush and dyspepsia as the product of hog and whisky."—*Dietetic Gazette.*

## A NEW DEODORANT.

Bromine has for a long time been recognized as being valuable in the treatment of gangrene and foul-smelling ulcers, but until recently its merits as an effectual and cheap deodorant have not been appreciated. It was brought into prominence a few months ago by Mr. Martin, the chemist of the health department of this city, who suggested its use upon the earth thrown up in laying the electric subways. As it is a by-product obtained in the manufacture of salt, and is not used extensively in the arts, it is sold at a very reasonable price—about seventy cents per pound. It has the property of precipitating the hydrocarbons of illuminating gas, and thus can be used to deodorize the earth exposed in excavations in the vicinity of gas-mains. More valuable than this is its effect upon decomposing organic bodies, which it renders completely inoffensive. This property renders it particularly valuable for use in stables. privy vaults, urinals, cesspools, or in any place which may contain foul-smelling organic matters.

It is soluble in about thirty-three parts of water, but a solution of this strength is not advisable, as there is a constant escape from it of the vapor of bromine, which is very irritating to the eyes and air-passages, and which may even attack wood and metals. For ordinary purposes it is used in solutions containing one part by weight to about eight hundred of water. In this strength it may be used freely without its affecting anything which it may touch. A few gallons used daily will remove all ammoniacal odors from stables, or a few quarts will thoroughly deodorize the entire plumbing system of an ordinary house. It also might be used with advantage upon ordinary house garbage, which usually becomes offensive so speedily in warm weather. There would appear to be scarcely any limit to its usefulness in this branch of sanitary science, and it will, as its merits are better known, undoubtedly be adopted universally as a substitute for the deodorants now in use, which usually act by substituting one unpleasant odor for another.

The only drawback in its use lies in the fact that the undiluted bromine is strongly corrosive, and, if it touches the skin, causes a painful burn. Where it is used in large quantities this can be obviated by opening the bottle, or, what is simpler, breaking it, under water. As its use becomes more extended it will undoubtedly be put up in pearls or tubes containing only as much as would be needed at one time in the average household.—*New York Medical Journal.*

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"Glory to God in the highest!" is what a visitor to the top of the Eiffel tower carved on the railing. Happy and pious thought!

# DOMESTIC VARIETIES

## Post et Ante.

No visitor to New Hampshire in the summer can fail to observe the large number of comfortable homes in the state. not spacious and imposing residences. but cosy homes. nearly all with a little stretch of green lawn carefully trimmed and watered by the thrifty owner. But how many of these lawns or yards (denominated according to size) will bear public scrutiny on the other side of the house? There is many a dwelling with a trim little green in front. which. if followed around to the rear, would give such a chill of disappointment as comes from plated jewelry. or from friends that do not wear well. To be sure. not all back yards. like one in the state. are used as waste-buckets. while around the corner of the house the mistress dispenses genial hospitality to her friends on a charming bit of turf: but there are very many which. if not as disgusting as this. are yet offensive to sight and smell. Winter is the favorite season for such disfigurement of otherwise neat-looking lots: hence this is the time of year when a little advice on back yards may be profitable. First. do n't rake up all the leaves on the front lawn and dump them in a heap under the kitchen window. Have a good. wholesome bonfire. if there is no other way of disposing of them. and thus delight the children of the neighborhood. Then. do n't use the yard as an ash-bin; construct a bin in a corner of the cellar. or put the ashes in barrels until spring. Many a windy winter morning have we seen a smoking Vesuvius giving Boreus his ashes to scatter in the eyes of passers-by and to powder a neighbor's clothes. For looks' sake as well as health's, do n't let the back yard become a general conglomeration of refuse! Think of the loathsome mass of stuff beneath the snowy linen on the clothes-line! Dream of the odor of empty fruit-cans and old bones that comes through the open pantry window to the flaky pie and toothsome tarts set there to cool! Do n't throw the soup-bones and empty cans out to start a rendezvous for half-starved cats and dogs. The snow may try to cover the disgraceful sight, but the warm spring sun will often disclose enough bones for an energetic scientist to construct a good-sized natural history museum, and enough tin cans and noseless pitchers for a whole orphan asylum to "play house." Do n't spare a clean sink. or try to avoid a disagreeable odor in the house. by saturating the ground with dirty water. Pour it down the sink. and follow it with a little chloride of line. The golden rule is especially applicable to the subject: and if each one were appointed sanitary

inspector of his neighbor's back yard. what a reformation would soon be in order! As it is, each one can begin at home. and keep his premises neat and wholesome on all sides of the house.

## The Broad and Briny Deep.

FIRST DAY.

Heave ho! yo-ho! for the raging sea.
On the fast Atlantic liner.
The ocean is the place for me:
Naught e'er was made that 's finer.

SECOND DAY.

O me! O my! O weal! O woe!
Alas for the raging sea. sir!
Dear me. I die. O hey! heave ho!
'T aint what 't is said to be. sir.

THIRD DAY.

O captain! put me on the shore.
In China. Russia. Burmah:
I do n't care where it is—oh. la!—
So long 's it 's *terra firma*.

FOURTH DAY.

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—*Berlin Independent.*

## How Long to Sleep.

Up to the 15th year most young people require ten hours. and until the 20th year nine hours. After that age every one finds out how much he or she requires. though. as a general rule. at least six to eight hours is necessary. Eight hours' sleep will prevent more nervous derangements in women than any medicine can cure. During growth there must be ample sleep if the brain is to develop to its full extent: and the more nervous. excitable. or precocious a child is. the longer sleep should it get. if its intellectual progress is not to come to a premature standstill. or its life cut short at an early age.

## How to Use Milk and Avoid Its Dangers.

Both physicians and people have long regarded milk as the ideal food; and with good reason, for it contains all the food elements necessary for the proper nourishment of the body. Casein is a rich and easily digested nitrogenous compound. Butter is the most digestible of all fats. Sugar of milk is a very good representative of the starches and sugars, while the salts contained in milk include all the mineral substances that are found in the body. Moreover, these different food elements are mixed in the right proportions and in an agreeable liquid form. It is not surprising, therefore, that milk is admitted to be the most valuable of all foods. For adults, beef is doubtless a better nitrogenous food than butter; but, as a combination of all the food elements in one substance, adapted to all stages of growth, milk is unrivalled. Nevertheless, like most good things, it must be understood and used properly, or else it may be highly injurious. It is the object of the present article to call attention to certain dangers attending the use of milk, and to show how these dangers may best be avoided.

A physician who is in the habit of prescribing milk diet will very often find patients who say that they cannot take it, that it always disagrees with them. In such cases it will often be found that the milk has been drunk like water, instead of being taken in sips with an interval between each. It may seem that the manner of taking it can make very little difference, yet the difference is really enormous. Suppose that a tumblerful of milk is drunk quickly, so that it all arrives in the stomach at nearly the same time: the gastric juice immediately begins to act on it, and by coagulating the casein, forms a single large curd. This solid mass must now be digested; but the digestion goes on very slowly, for the interior of the curd cannot be reached until the outside is first dissolved. So the feeling of weight and dull distress so often complained of is very easily accounted for. Now, suppose that the same quantity of milk has been taken slowly, a teaspoonful at a time: each spoonful is curdled before the next arrives, so that when all is taken, the stomach will contain a number of small and light curds instead of a single large one. True, the quantity is the same, but the surface on which the gastric juice can begin to act at once is very much greater, according to a well known mathematical law: hence digestion goes on easily and rapidly. Here then, we have a fact of great importance, on which a distinguished professor in the University of Pennsylvania used to insist most vigorously.

*To the stomach milk is a solid food, not a drink. It must be eaten with a spoon, or slowly sipped, and never drunk like water.*

Applying a knowledge of this fact, a clever New York physician cures many cases of indigestion in bottle-fed infants, simply by seeing that the nipple of the nursing-bottle has a small hole instead of a large one.

But the manner of taking milk, important as it is, is by no means the only thing to be considered. The milk itself must be from good, healthy cows, and must reach the consumer clean and pure, without the slightest trace of decomposition. This means far more than appears on the surface. Selecting an honest dairyman will save the milk from dilution, but unusual care and cleanliness are necessary to save it from filthy contamination. In dairies where care is not taken to keep the stables and cows as clean as possible, one thousand quarts of milk will contain about a double handful of filth, which is mostly dung that has dropped into the pail from the udder and skin of the cow during the process of milking. Such milk will often betray itself by a characteristic smell and taste. Surely nothing more need be said on the score of cleanliness.

But cleanliness is not enough. *The milk must not have a trace of decomposition when it is taken into the stomach.* This is the most important requirement of all. It has long been known that every summer, beginning toward the end of June and ending some time in September, there is a most appalling amount of sickness and death among young children. The disease is called summer complaint, or cholera infantum. Twice as many die of it in July as in August, although the latter is usually the hotter month. The only satisfactory explanation of this difference is, that so many die in July that there are not enough left to keep up the same rate for August. It goes without saying, that many theories have been put forward as to the cause of cholera infantum. With tireless labor, Dr. Seibert, of the New York Polyclinic, has taken up each theory, and tested it by the facts as shown in the statistics of thousands of cases. One fact, and one alone, satisfactorily accounts for the disease; that is, that during the hot summer months the milk fed to children is apt to be more or less decomposed. The products of decomposition are dangerous and often fatal poisons, and are abundantly able to cause all of the symptoms. All that is known of the disease accords perfectly with this theory of its cause. The great thing, then, is to prevent milk from decomposing. How can this be done? Pasteur and others have proved conclusively that all putrefaction and fermentation is caused by extremely small living organisms, most of which go by the name of bacteria. Fresh milk from the cleanest cow always contains some bacteria, and these multiply. If milk which has stood for twenty-four hours in warm weather is properly examined under a microscope, it will be found to swarm with them. Indeed, it would be hard to find a substance in which they will multiply more rapidly, and, as they

increase, the milk becomes more and more dangerous. They must be killed in the very beginning.

Every house-keeper knows that if fruit is heated to the boiling point and then sealed in a can or jar, it will keep indefinitely. The reason is, that the heat kills whatever organisms happen to be present in the fruit, and sealing the can prevents the access of new ones after it has cooled enough to be habitable by them; while, without organisms of some kind, no putrefaction or fermentation can occur. Speaking in scientific terms, the fruit is *sterilized*. Now, if good, pure milk, fresh from the cow, is thoroughly sterilized by heat, and is then kept sterile by being shut off from the air, no child fed exclusively on it will ever have cholera infantum, simply because it will not decompose and so cannot contain the poison which causes the disease. When this fact is thoroughly understood and acted upon, cholera infantum will be a thing of the past. If any one doubts this statement, let him remember that the antiseptic treatment of wounds, which has made such a marvellous revolution in surgery, consists merely in making a wound sterile, and in keeping it sterile until it is healed. As a result, certain diseases, like hospital gangrene, which the old soldiers remember so well, are now utterly unknown where the antiseptic treatment is faithfully practised.

Although the danger to bottle-fed infants is always greater in the warm months, so that the "second summer" is proverbially a dangerous time, it is still important that the milk used should be sterilized, whatever the season. Bacteria do not develop so rapidly in cool weather, but they do develop. The writer has had conclusive proof in his own practice that children will thrive far better on sterilized than on unsterilized milk, even in winter and spring.

Milk may be sterilized at home in the following way:

A bottle is provided large enough to hold a day's supply, and is fitted with a good cork. Both it and the cork are thoroughly washed in hot-water. The proper quantity of milk is then put into a double boiler, such as is used for cooking farina or corn-starch, and the water in the outside vessel is boiled vigorously for at least fifteen minutes. The milk is then poured into the bottle and immediately corked. It is to be kept in a cool place, and uncorked only long enough to pour out what is needed for each feeding. Of course the sterilization should take place as soon as possible after the delivery of the milk. If it is to be diluted, as it should be for young infants, the water may be mixed with the milk before steaming, or water that has been boiled may be added at the time of nursing. Some instrument-makers supply a special apparatus, consisting of eight or nine bottles, each large enough for one feeding, and a tray like a caster in which the bottles fit. Each bottle has a perforated

rubber cork, and a small glass stopper for the perforation. The milk, properly diluted and sweetened, is poured into the bottles and the rubber corks inserted, but the glass stoppers left out. Then the tray of bottles is lowered into a vessel of boiling water, where it is left for fifteen minutes, and immediately after it is taken out the glass stoppers are inserted. As each bottle is needed it is warmed, the glass stopper is removed and a rubber nipple put on. This nipple must be absolutely clean, and its opening must not be too large.

In London, Vienna, New York, and other large cities, enterprising dairymen make a regular business of delivering sterilized milk. The milk is steamed at the dairy when perfectly fresh, and is immediately sealed in bottles which are delivered to the consumer each day. The great advantage of this arrangement consists in the fact that the milk is heated before any serious chemical change can possibly have taken place. Besides, the process can be more conveniently and accurately carried out by those who are accustomed to do it on a large scale. If constipation occurs in a child fed on sterilized milk, it is an indication that a larger proportion of cream is needed. In that case the cream must be added before the milk is steamed, or it must be separately sterilized. Neglect of this precaution may make the whole process useless.

It is not too much to say that the sterilization of milk is the most essential of all measures for the prevention and cure of digestive disturbances in children, and many an adult, who finds raw milk to disagree with him, will thrive on that which has been sterilized.

HOWELL PERSHING, in the *Herald of Health*.

## To Make Koumiss.

Fill a quart champagne bottle up to the neck with pure, fresh milk; add two tablespoonfuls of white sugar, after dissolving the same in a little water over a hot fire: add also a quarter of a two-cent cake of fresh compressed yeast: then tie the cork on the bottle securely, and shake the mixture well. Place in a room of the temperature of 50° to 95° Fahrenheit for six hours, and finally in the ice-box over night. Drink in such quantities as the stomach may require. This, as will be seen, is very inexpensive. Care should be taken not to allow it to be used if it contains curds, which indicate too much fermentation. Precaution should be observed in opening the bottle, on account of the effervescent quality of the product. Probably koumiss has no essential virtues other than those which resided in the original milk, and which are preserved by the processes to which it is submitted. It is a drink easily borne on delicate stomachs, and it is a very agreeable change to some invalids long confined to a fluid diet.—*Boston Journal of Health*.

## CONTAGIOUS AND INFECTIOUS DISEASES IN NEW HAMPSHIRE.

The following contagious and infectious diseases were reported to the State Board of Health for the month of October:

Diphtheria: Manchester 14, Acworth 2, Canaan 3, Nashua 1, Canterbury 1, Rochester 1, Marlow 3, Walpole 1, Claremont 5, and Keene 48, with 12 deaths. This makes 73 cases of diphtheria in Keene since the first of September. The health officer says,—"Private funerals have been ordered, prophylactic measures enforced as much as possible, and in some cases attendants have been furnished for the sick."

Scarlet-fever: Manchester 14, Concord 3, Canaan 1, Keene 2, Tilton 6, and Hooksett 2.

Typhoid fever: Manchester 3, Concord 3, Henniker 1, South Newmarket 3, Nashua 9, Canterbury 1, Rochester 1, Laconia 2, Pittsburg 1, Weare 1, and Amherst 2.

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## PUBLICATIONS RECEIVED.

*The Dietetic Gazette.* A quarterly journal of physiological medicine. New York and Philadelphia. Fifty cents yearly, in advance.

*Health Monitor.* A monthly journal in the interests of the medical profession and the public. Denver, Col. $1 per year.

*Lake Village Times and Belknap Republican.* Published every Friday at Lake Village, N. H. $1 per year.

*New England Magazine.* An illustrated monthly. Boston, Mass. Twenty-five cents a number. $3 per year.

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"Now, children," said a teacher, after reading the old story of Washington's exploit with his hatchet, "write me all you can remember of that pretty story I have just read to you." The following was the result: Slate I. (Teddy, eight years old.) "George Washington is our father did he tell a lie no he never did he did with a hatchit." Slate II. (Ethel, seven.) "george washington was the father of is countre hes father sed did you do it he sed i wud not lie i did it with my Hathit and then he busted in tears." Slate III. (Georgie, nine.) "George Washington is the father of our country and he did it with his hatchit and he sed father I did it did the boy deny it o no did he try to put it on some other fellow No He did not tell no lie he burst into tears."—*Science.*

THE

# SANITARY VOLUNTEER

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## SANITARY AND OTHER NOTES.

Don't spell shadow with two d's. Make your shadows as short as possible.—*Dr. Charles S. Robinson.*

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It is said that out of 60,000 Hebrews in New York city, not one is the keeper of a liquor saloon.

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The Parisian models of dress, which were recently adopted by the empress and the aristocratic ladies of Japan, have been abandoned. The style was regarded as so uncomfortable and unhealthful, besides not pleasing the people, that the historic costumes will again be exclusively worn.

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It is a strange thing, indeed, to see how few people are able to do some thinking of their own. The brains of most people are like street organs, which are capable of playing certain tunes only; whenever the machine is wound up and let loose, nothing but these tunes are played over and over again.—*Dr. Carl Heitzman.*

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It is said that *dry rot* in wood is caused by a germ, and that it is undoubtedly communicated to sound wood by the means of carpenters' tools, as well as by various other means.

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Dr. Felix Oswald says,—"Nature takes care to shorten a life of misery. The survival of the happiest is also the survival of the fittest."

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Dr. F. L. Sim, of Memphis, Tenn., has been appointed a member of the Tennessee State Board of Health vice Dr. G. B. Thornton resigned.

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A title-page will be sent, upon application, to those who wish to bind this volume.

A great many people have no idea of how important it is to take good care of the teeth. The evil effects of bad and uncleanly teeth upon the general health have been too often observed to be denied. A writer in the *Ohio Journal of Dental Science* calls attention to a very grave danger, as follows:

"I have very good authority for saying that diseased roots and teeth have a great deal to do in starting tubercular trouble in the lymphatic glands of people predisposed to this disease. Tubercle bacilli gaining admission to the jaw through the diseased teeth, speedily infect the structures in their neighborhood. It would be right, therefore, for us to look well to the teeth of patients having a tubercular tendency, and see that they keep their mouths in a thoroughly healthy and aseptic condition."

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The American Public Health Association has instructed the quarantine officers of the United States ports having intercourse with Cuban ports to exercise the same vigilance with regard to leprosy that is already observed in the case of yellow-fever.

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"I often wonder," says a writer in *The Laws of Life*, "if people know how cruel they are to the sick when they persistently inquire 'How do you do?' 'Are you better?' and so on, but they seem to have nothing else to say when they come to call on me; and then they sit back and wait to hear full particulars. Instead of that they ought not to give me a chance to say a word about myself. Of course I must be civil, and say something; and I am weak and naturally thinking too much about myself, and, before I know it, I have yielded to the temptation they have put in my way, and by the time they leave the room I cannot help thinking how utterly wretched I am. When I was well and visited the sick, I used to think beforehand of what I would say, or of some story that I would tell, but I *never* once said to an invalid 'How do you do?'"

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The Arkansas traveller's story, says the *Sanitary News*, about the leaky roof, which could not be repaired in the rain, and which did not need repairing when it was not raining, finds a parallel in those places where sanitation is disregarded. When sickness overtakes the people, they are unable to observe the laws of health, and when they are well they do not think it necessary. It is difficult in some instances to get people to observe sanitary regulations when no sickness is present, although the cause of sickness may lie in the filth-pools about the house, be in the water they drink, or in the air they breathe. When they are

sick. they will take medicine: but when they are well they will not take precautions against disease: and so. through their physical leaky roofs they get drenched unto sickness.

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The Lomb Prize Essay on "PRACTICAL SANITARY AND ECONOMIC COOKING ADAPTED TO PERSONS OF MODERATE AND SMALL MEANS," which won the $500 prize offered through the American Public Health Association. has just appeared from the press. It is an invaluable work for every family. and is offered at a remarkably low price. just sufficient to cover cost of printing. See an advertisement of it in this number of the SANITARY VOLUNTEER.

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## REGARDING THE PREVENTION OF PULMONARY CONSUMPTION.

At the last meeting of the American Public Health Association. there were presented three papers on pulmonary tuberculosis. all of which clearly showed the contagious character of the disease. The subject was also ably discussed. and upon motion of Dr. Albert L. Gihon. Medical Director U. S. Navy. the following resolution was unanimously adopted:

*Resolved*. That it is the sense of this Association. in the interest of public health. that the community should be instructed that the destruction of the sputa of tuberculous patients is an absolutely essential part of the means of preventing the spread of the disease.

This resolution is in strict accordance with the most recent scientific investigation regarding pulmonary consumption. and the fact should be most emphatically impressed upon the public mind.

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## THE SANITARY VOLUNTEER TO CEASE.

It is with much regret that we are obliged to suspend the publication of the SANITARY VOLUNTEER with this issue—for the present. if not permanently. We are compelled to take this course by reason of the largely increased labor and responsibility that have been imposed upon the state board of health by the law which made this board a commission of lunacy also. This very important additional work leaves the Secretary no time to edit and look after a monthly publication. hence we see no other course but to suspend this little journal.

We believe that the SANITARY VOLUNTEER has done no small amount of good during its single year of existence. and the many letters and verbal endorsements of it which have been received strengthen this belief.

The liberal support it has been given demonstrates that here in New Hampshire, even, there is room to successfully publish a popular Sanitary journal.

We extend our thanks to the people, the public press, and to individual citizens for the many courtesies that have been received. We say farewell here, only to turn our attention in a more concentrated way to the legal duties that have been imposed upon us in guarding the public health interests of the state, and in securing for our unfortunate, indigent insane better care and treatment than have heretofore been given this terribly afflicted class.

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## HOW TO BE HAPPY UNDER ALL CIRCUMSTANCES.*

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I must introduce myself, that you may know on what authority I am speaking. I am young in years, but I am a veteran in the noble army of martyrs who have had to fight aches and pains almost from the cradle. Both my parents died with consumption, and I think I was born with nervous prostration. At the age of five I could read and write in my own language, the Russian, at nine studied Latin, at ten Greek and German, later on even Hebrew was added to the dead languages; at fourteen I began to practise the violin, and at fifteen my nervous system gave out and I had to leave college. At eighteen, during my final examination, I was arrested on suspicion of being a Nihilist, and soon after I had to leave Russia to be saved from spending the rest of my days on the sunny plains of Siberia. On my arrival in this country I concluded to go on a farm, so as to give my brain a rest and develop my body; but not being used to any manual labor whatever, the hard work of the farm, with want of good food, soon exhausted the little strength I had, and this time my sickness took on the form of lung trouble. The best physicians in New York city gave me up to die of consumption; but I went to California, spending two years there in the open air, and under the care of a strictly hygienic physician, I disappointed the predictions of the scientific gentlemen, and I did not die, and I am not dead yet.

Last winter I went to New York to complete my medical studies, and, working there very unwisely, my nervous system gave out again. Though I had been here two years before going to college, yet I did not learn the important lesson of resting, and only doing what I could, so that when the winter course was ended I was about ended too. I went all to pieces. I was in bed for several weeks, without being able to raise my head. * *

* Extract from an address by M. A. Schutz before the "Bright Side Club." From "The Laws of Life."

If I were to tell you the disappointments I had last winter and what I suffered during my last struggle for health, I know you would grant me the privilege of calling myself the most miserable man in existence; and yet, if any one should tell me so I should show a disposition to fight, because I consider myself one of the happiest men living.

What, then, is the reason that notwithstanding all my suffering and disappointment I consider myself so happy? It is because, in the first place, I have learned the important lesson to think of others. I sometimes remark that I have a personal acquaintance with all classes of people, from the American tramp to the American millionaire, and I have yet to find a case where a man having all the wealth he wants, the best of social conditions, and even the greatest boon he can possess, good health, who is happy if all his thoughts and aspirations are centred in self.

There is always something happening to such a person to mar his happiness. On the contrary, those who think of others and lose themselves, find happiness under all conditions. Read what noble souls like the Russian Nihilists have shown themselves to be, and what they have to suffer in the Russian prisons and dungeons, where they have to pass through illness and sickness in chains, and a wheelbarrow attached to their legs, lest they run away, and you may have an idea of what some human beings have to endure. On the other hand, read the beautiful picture in Bellamy's wonderful book, "Looking Backward," where he describes the possibilities of human life under right social conditions, and I do not know how such a contrast may affect others, but it makes me feel that I do not want any comfort and pleasure, but to go down on my knees and ask God that He may give me wisdom and strength that I may be able to do something to bring about that glorious day when all human beings, regardless of sex, color, or nationality, will have an equal privilege of enjoying the manifold blessings of this life.

There is another important lesson that I have learned. Tell me, What are we living for? What is the destiny of man? These are questions which have frequently come up in my thoughts. To solve them I have searched many philosophies and studied different religions, but the only satisfactory answer I could find, an answer which fully satisfied my inmost craving, is, that we are created in the image of God. I do not know what this may mean to others: to me it means that we are intended to become godlike, and that as ages roll on, as we grow in divine perfection, and in the divine attributes of love, wisdom, and power, we are to become very gods ourselves, fit companions to our Creator.

And it is not infrequently that it is through mistakes and errors, and even by what we call misfortunes, that we have to grow godlike. It

seems to me, after all, that it does not require so much faith to believe that all is well, or that all is going to be well; it only requires the right kind of thinking to convince us that there are no misfortunes, that they are only lessons we have to learn in our imperfect state, to bring us nearer to God, to teach us to become one with Him. For instance, it is considered a misfortune to be sick, and it may seem to have no good in it: but what is sickness? Is it not the result of the violation of law,—a kind reminder from our Heavenly Father that we should learn that most important lesson of obedience?

Obedience is the secret of power, and when we learn the lesson of being in harmony with the laws of our being, we have God and Nature on our side in everything we undertake.

Another lesson that we may learn from sickness is sympathy. Without suffering ourselves, how can we understand the sufferings of others? I thought I had suffered so much that there was nothing for me to learn: but I shall never forget that beautiful experience in my last illness, when almost every faculty of my body and mind was weakening, when I could not endure the breathing of a human being in my room, yet my heart was full of love and gratitude to those kind friends who tried to make me comfortable. I felt the immortal within. As earth was fading away, heaven was opening. * * *

Your sickness and mine have many a blessing in them; they are only lessons to bring us nearer to God.

If you will look on life from that stand-point, if you *will* to see the bright side of everything, you will feel that after all there are no misfortunes and trials; that they are only blessings in disguise. Then your souls will be filled with such peace that nothing will disturb them, and your lives will be filled with such joy and happiness that you will feel like singing all the time, and you will thank God for the blessed privilege of existence.

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## FAMILY CARE FOR THE INSANE.

With many insane persons, in certain stages of their malady, and with some at all stages, asylum life, or the care and restraints of a hospital, are quite necessary.

But there are others for whom the asylum long since did all that it could in the way of benefit, and upon whom the monotonous life, the absence of affectionate interest, and other circumstances existing in most asylums, exercise an unfavorable influence, and lead to negligence, indifference, or despair. The patients I am now to describe came to me in October, 1886, and have been with me ever since; they had all been in

asylums for at least five years, and one of them much longer than that. All were Irish women. The youngest is not more than thirty-seven now, the oldest perhaps above sixty.

The first (J. W., aged thirty-seven) was a case of dementia following melancholia, with delusions.

Her habits were un-neat and disorderly; she talked incessantly to herself; would sit in one position for hours, scowling and muttering, often tearing her hair, and sometimes becoming wildly excited and violent in appearance, venting her mania upon the thing nearest at hand. She talked nights, and had but slight idea of work and how it should be done. She was very forgetful, needing to be told to bathe, comb her hair, and change her dress every day.

After preparing the potatoes for dinner one day, not long after her arrival, we found she had put them into the tea-kettle to boil, and she made other mistakes quite as odd.

She would take a pan off the hot stove and set it in her lap, on her dress or apron, just as it happened. One of her peculiarities was to run and hide if a stranger entered the house, complaining that her head was open, and she was in no condition to be seen. This idea has, however, entirely disappeared, and she will see and talk with people freely and rationally, and will even go to strangers' houses on errands, and take pleasure in doing so.

She has now, after two years, so far recovered as to be almost entirely well, and a melancholy day is unknown. She is extremely neat and orderly, keeping her clothes nicely mended, and making all articles of dress for herself, with very little assistance in cutting and fitting. She is an excellent laundress, and exceedingly neat help in the kitchen, a cheerful and willing worker at all times, and has a most affectionate and lovable disposition; sings Irish songs about her work, and makes witty remarks, keeping others in good humor.

Lately she has taken nearly all the care of planting and tending a large garden, and has done it well. She has grown strong and robust, thoughtful and practical. Kindness and merited praise have done much towards this improvement, and, but for an occasional desire to talk to herself, we should consider her recovery assured. The above mentioned is the youngest of three Irish women under my care.

The second (C. M.), a woman about twenty years older, was a case of chronic mania. She seldom spoke intelligibly or intelligently, but talked incessantly and incoherently, often in high and excited tones, *never* smiling. She was up nights, more or less, talking much; took little interest in anything or anybody; and was so oblivious of her surroundings that she would not notice if any one knocked at the door, or a

stranger entered the room, and would not reply when spoken to, unless one went close to her and attracted her attention by calling her by her full name.

Now she hastens to answer a rap at the door, and delivers any message quickly and accurately. If we go away she extends her hand and rationally bids us "Good-bye," and hopes we shall have a pleasant journey, and expresses her pleasure when we return, saying, "Welcome home;" asks us many questions as to our visit, where we went, and what we saw.

She also worked very slowly,—so much so, in fact, it would take her all the morning to sweep and dust an ordinary room, so often did she stop to wring her hands and talk to herself or to imaginary persons.

She now works quickly and rationally, and interests herself in all the minor details of housework. She takes sole charge of a large stock of poultry, and keeps account of the number of eggs laid daily. She is a nice laundress and good housekeeper; makes all the bread for a large family, never making a mistake in the ingredients or quantities. She recollects what days in the week to wash, iron, sweep, and clean, and goes about her duties without being reminded of them, and without the slightest supervision. She has all the care of the dining-room, arranging the table and changing the linen, and waits upon table quietly and systematically. She has, therefore, gained remarkably, both mentally and physically; makes all her own clothes, and is a pattern of neatness and order. The mode of management with her has been that of love and kindness.

The third patient (M. D.) was a case of dementia with delusions. She exhibited high temper and obstinacy, talked more or less to herself, was extremely careless of her appearance, with unkempt hair, and an offensive catarrhal cough. She was then a constitutional grumbler and fault-finder; now she is nearly always cheerful and obedient, and often sings to the others when she sits down with her work in the afternoon. She is very active, and does her work well; is a good laundress, chamber-maid, and seamstress; takes pride in her dress, and is neat and orderly. She coughs only occasionally, and is greatly improved in health, looks, and intellect. The mode of treatment in her case has been entirely the reverse of the former two, as the more kindly and affectionately she was treated the more impertinent she became. Nothing but firmness and severity was found to be effectual.

It is almost an unheard of thing for these three women to quarrel. They go about their work quietly and systematically, using their intellects in a marked degree, and assisting each other when occasion requires. They chat, sing, and read together, go to walk alone or together,

and go of errands. They can be trusted in all things, and are great care-takers; could "run the house" for a time, if necessary, being very careful about fires, and knowing how to make and tend them. They read to themselves and to each other out of the Bible, newspapers, and magazines. Being in good bodily health, they sleep well, and rise smiling and happy in the morning.

Such a marked change in them all, from their unhappy, depraved, and disorderly condition of less than three years ago, is of course extremely gratifying; but they are only a fair example of what quiet, cheerful, and kindly home-life will do for the poor insane of the chronic class.

These results must appear remarkable to some; but a person unacquainted with asylum life can hardly realize the many and varied benefits secured by placing the chronic and quiet insane in private families. Those who have the care of them in hospitals agree that the noise and confusion, the quarrels and violent outbreaks of the patients, are a severe strain upon their own nerves and mental faculties. If this is the case—and I know by experience that it is—what must be the effect upon those unfortunates whose brains are already diseased?

In nine cases out of ten their ambition and interest perish; their intellects become weaker, and they drift into hopeless derangement; and not only is this death to the intellect, but in the majority of cases a long, tedious wearing out of the bodies. Aside from the evil wrought upon the weakened brain, asylum-life has an injurious effect upon the bodily health, since it is almost impossible to secure perfect ventilation in the large hospitals, and the foul particles of air are transmitted to the systems of healthy patients, thus causing offensive nasal, lung, and stomach diseases that are difficult to eradicate, and often become chronic. Then the noise and disturbances during the day, caused by interfering and annoying patients, are only partially arrested during the night, and the poor creature that so much needs quiet and rest is oftentimes kept awake by the screaming, singing, cursing, and jabbering of the more noisy ones. How is it possible under such circumstances for them to improve, and be cheerful and happy? In the private family all this is different, or ought to be, and amidst more natural and wholesome surroundings a new educational process begins. Step by step, as their minds become clearer, they take up the thread of life, and learn again the little duties that have been so long forgotten, until, by patient and carefully selected tasks congenial to their different tastes, they have become interested; when they will, of themselves, finish the work begun by another. Thus it is an industrial education which these poor women have received, and by it they have regained the power of self-support, which their insanity had deprived them of.

As an experiment in the line of industrial training it is worth considering, especially if girls are to be trained in domestic industries, and made good, practical housekeepers or servants. What has been done with these middle-aged women, of weakened mental powers, ought to be accomplished more easily with healthy and intelligent young women.

ALICE R. COOK, in *Lend A Hand.*

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## THE CONTAGIOUSNESS OF DIPHTHERIA AND ITS MUNICIPAL CONTROL.[1]

Although the contagiousness of this disease has been recognized for two hundred and fifty years, we at this day find members of the profession denying it, and refusing the greatest safeguard not only to their own families, but to the public at large, in casting their influence against isolation and other means to prevent the spread of the disease.

The authorities almost without exception are a unit in regard to its contagiousness. From a large number I select only a few.

Condie says it is capable of being propagated by a contagious miasm. Ellis pronounces it a contagious disease. Meigs and Pepper call it moderately contagious. Meadows speaks of its epidemic form. J. Lewis Smith considers the area of contagiousness limited to the room, or to the immediate vicinity. He says the sputum and pseudo-membrane can communicate the disease. Jacobi thinks it *very* contagious; the patients and surroundings convey the disease; the poison rises to upper stories with the hot air. Eustace Smith insists upon its contagiousness. He says the risk of infection is in direct proportion to the amount of exudation, and the readiness with which the membranes can be detached and dispersed. Kissing is a mode of contagion, and should be interdicted. Fricout and Burley, in 1836, believed in its contagiousness. Kessler advocates the contagious view. Pepper thinks it is conveyed directly by patient, by furniture, dishes, etc., and through the air in short distances; it increases in direct proportion to the neglect of ventilation. Starr thinks it certainly contagious, though the power of contagion is weak; is communicated from one patient to another, but not carried about in the clothing. Sten er pronounces it contagious, sporadic, and epidemic; medium unknown. Duncan says one person in the house may communicate it to all susceptible persons, even if they are isolated. Day speaks of infection of the atmosphere in the room and house. Hillier thinks it contagious only when in epidemic form.

[1] Extract from a paper read by Charles Warrington Earle, M. D., Professor of Pediatrics Woman's Medical College, Gynecologist Wesley Hospital, Chicago, before the Medical Society; copied from the *Archives of Pediatrics.*

In this connection there are many questions which might with profit be discussed, such as the time of incubation, the identity or non-identity of croup and diphtheria. But its contagiousness, in my judgment, is of the greatest importance.

One would think from our discussions that the chief aim of the practitioner of to-day was to tube the larynx or perform tracheotomy. The object paramount in my judgment should be to prevent the disease, which in large measure can be accomplished if we are a unit as regards our opinions of contagiousness, isolation, and disinfection.

In view of the mortality from this dread scourge—a hundred-fold more than from small-pox—I see no reason why our local board should not have this matter in charge, investigating each home invaded by this disease, and seeing to it that what is known regarding disinfection and isolation is rigidly enforced.

After the discussion of the paper the following resolution was offered by Dr. Earle and adopted by the Society:

"Inasmuch as the contagiousness of diphtheria is recognized by the majority of medical practitioners,—therefore,

"*Resolved*, That the commissioner of health will be justified in placarding or otherwise designating houses infected with this disease."

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## CHARACTERISTICS OF THE INFECTIOUS DISEASES.[1]

The purpose of this circular is to set forth, for the use of teachers, school officers, and non-medical members of local boards of health, the principal characteristics of the infectious diseases and of their infection, and to give brief hints in regard to preventing their spread.

Note of Definition.—The *period of incubation* is the time which elapses after the reception of the infection, until the first or premonitory symptoms occur. *Period of invasion*, time from the first symptoms until the disease is declared, or, in the eruptive fevers, till the appearance of the eruption. *Vesicle*, an elevation of the cuticle containing a clear watery fluid. *Pustule*, same as "vesicle," excepting it contains pus or colored serum.

CHICKEN-POX. Period of incubation, 13 or 14 days; may be shorter or may be prolonged to 18 or 19 days. Period of invasion very short. A disease of childhood, but occasionally occurring in adults. The eruption consists of clear, watery blisters or vesicles, scattered irregularly over the body. The eruption is often the first thing noticed. Premonitory symptoms are often overlooked, as also are often the small red spots preceding

[1] A circular issued for public distribution by the State Board of Health of Maine.

the vesicles. The "blisters" reach their full development in 24 or 36 hours. Successive crops of vesicles and unequal development of them on the same parts of the body. With the appearance of the eruption, the fever increases. (Compare small-pox.)

CONSUMPTION (PULMONARY TUBERCULOSIS.) The investigations of the last few years make it certain that this is an infectious disease, and also make it likely that the only serious source of danger is the sputum, or expectoration. While the sputum is moist it is practically harmless; after it is dried, pulverized, and floated in the atmosphere, so that it may be inhaled, it is dangerous. Avoid, therefore, spitting upon floors, in handerchiefs, or upon other things within doors, where the infectious sputum will be dried and pulverized. Use a spit-cup. Tuberculous or consumptive children should not be allowed to attend school, and persons with this disease should not teach. (See Circular No. 54, Prevention of Consumption.)

CROUP. Membraneous croup is now generally regarded as diphtheria of the air passages, and the same precautions are applicable to it as in ordinary diphtheria.

DIPHTHERIA. Period of incubation 2 to 7 days, but may be longer or shorter. The distinctive feature of the disease is the false membrane which invades the mucous membrane, more frequently of the throat. The false membrane appears at first as a whitish patch, or there may be several such spots, which may gradually or rapidly increase in size and coälesce. The condition and appearance of the false membrane as first discovered may remain stationery for a while, or gradually disappear. Occasionally in cases of diphtheria the false membrane is absent, or in localities where it is not to be seen. When diphtheria is prevalent, it is safer to regard all cases of sore throat as diphtheria, and to require a reasonable amount of care until they are pronounced non-diphtheritic and non-infectious by a physician. "Diphtheritic sore throat" is diphtheria.

The diphtheritic infection is much more dangerous to children than to adults. Many persons are not susceptible to it; and, on the other hand, articles and rooms infected with it may retain their dangerous qualities for a long while. Children who have had diphtheria should not be readmitted to school earlier than three or four weeks after recovery, or not until precautions in the way of thorough disinfection, etc., have been taken which are satisfactory to the local board of health. The infection may be carried by those who have not had the disease. (See Circular No. 44, Diphtheria.)

DYSENTERY. Some forms at least of this disease appear to be infectious. The infection is undoubtedly given off in the discharges from

the bowels, and it is often spread, as typhoid fever is, by the contamination of drinking-water. Period of infection, said to be from 3 to 7 days.

ERYSIPELAS. Infection usually gains admission to the system through a wound or abrasion of the skin or mucous membranes. The infection may be carried by the clothing, or by the hands of attendants. The period of incubation is very short.

GERMAN MEASLES (RÖTHELN.) This eruptive disease has no relation to measles and scarlet-fever, with which it is sometimes confounded. Its period of incubation is long, 2 to 3 weeks. The eruption appears earlier than in measles, often within 24 hours after the first symptoms. The rash fades about the third day, or earlier, and the fever gradually disappears with the rash. Desquamation is absent, or very slight. The eruption is not so "blotchy" as that of measles; sometimes resembles that of scarlet-fever. Incubation is longer than that of measles, and much longer than that of scarlet-fever. Period of invasion, shorter than that of measles. Catarrhal symptoms not so severe as in measles. Throat symptoms not so marked a feature as in scarlet-fever. Patient should not return to school until two weeks after recovery. (Compare, further, Measles and Scarlet-Fever.)

GLANDERS. An infectious disease of horses which may be communicated to man. A horse with glanders is too dangerous to be permitted to live. Period of incubation from 3 days to several months.

MEASLES. Period of incubation 8 days on an average, or 12 days to the appearance of the rash. Eruption preceded by catarrhal symptoms, like those of a severe cold. Fever falls rapidly after the eruption is fully out. Rash usually begins on the face as slightly raised red spots which form crescentic groups, coälescing into patches of irregular outline. Eruption more distinctly "blotchy" than in scarlet-fever, and a duller red instead of scarlet. Measles is infectious in its earliest stages before the rash has appeared. The infection may be carried by clothing. Children should not return to school for at least two weeks after recovery. (Compare German Measles, Scarlet-Fever, and Small-Pox.)

MUMPS. In most cases the period of incubation is from 14 to 21 days, but may be shorter. The distinctive characteristics of the disease are the fever, and the swelling and tenderness of the glands just below and in front of the ear. The swelling often extends upon the face or down upon the neck. The history of a possible infection should be taken into account. The patient is infectious for at least three weeks after the swelling of the glands, and possibly sometimes before the swelling begins.

PNEUMONIA. Many observations seem to show that pneumonia, at least sometimes, is contagious. In all cases it would be prudent to

receive the sputum in a cup or vessel, so that it may all be destroyed or disinfected. The sputum is undoubtedly the sole source of infection.

SCARLET-FEVER (SCARLATINA). SCARLET-RASH. CANKER RASH. "RASH." Period of incubation 1 to 3 days. The onset of the symptoms is usually sudden. The rash appears within 24 or 48 hours after the first symptoms (shorter than in measles and small-pox), usually coming out first on the neck and chest, afterward extending to the limbs. The fever does not abate suddenly, after the appearance of the eruption, as in measles and small-pox. Rash consists of a multitude of fine red or scarlet points, the color of which is diffused over the whole surface. Sore throat is almost always an early and prominent symptom. The tongue usually presents a peculiar appearance, designated as "strawberry tongue." Cases are infectious as soon as the eruption has appeared, and until the completion of the desquamation, or peeling, which is often not before 6 or 8 weeks. The infection may come directly from the patient, or be carried upon the person or in the clothing of those who have not had the disease. Infected clothing, furniture, rooms, etc., may retain their dangerous qualities for a long while, unless very careful disinfection is done. Children from 2 to 7 years of age are more likely to take the disease, and when they do, are more endangered by it than persons at other stages of life. After 10 or 12 years of age there is a rapid diminution of susceptibility to the infection of scarlet-fever. (See Circular No. 48, Scarlet-Fever.)

SMALL-POX. Period of incubation 10 to 12 days. In about three days more (sometimes on the second) the eruption begins to show as small red spots or specks, and then as pimples or papules, at first on the face and wrists, gradually passing over the body. Sometimes at this stage a diffused rash appears. The papules are changed in about 24 hours into vesicles, which, when they are sufficiently developed, show a characteristic depression in the centre, that is, are "umbilicated." The contents of the vesicles gradually become yellow, and the eruption has then become pustular. In varioloid the eruption aborts at various stages. Severe pain in the back is somewhat characteristic of small-pox. There is usually a marked diminution of the fever after the eruption is out. Small-pox is intensely infectious, but less so in the earlier stages of the eruption. The small-pox patient is infectious until the skin is cleared of all crusts and careful disinfection is done.

Vaccination not only lightens small-pox if one happens to take it, but when well done and not too recently, insures almost absolute protection from taking the disease. (Compare Chicken-Pox, Scarlet-Fever, and Measles.)

TYPHOID FEVER. Period of incubation 14 to 21 days, but may be

shorter, especially in cases with a severe and rapid course. The natural duration of the disease is 3 or 4 weeks, but severe cases may end fatally even in 10 or 12 days, or mild cases may recover in two or three weeks. The infection is given off by the patient principally in the dejections; therefore, if a proper disinfection and disposition of these are secured, the patient will not endanger others. Typhoid fever is usually "caught" by drinking water contaminated with the infectious matter of the typhoid discharges, or breathing the air from privy vaults or other places which are similarly polluted and infected. (See Circular No. 46, Typhoid Fever.)

WHOOPING-COUGH. May be communicated either directly from the patient or through the medium of infected clothing, etc. Period of incubation about 6 days. The peculiar cough is characterized by a series of quick, short, forcible expirations with flushed face, then recovery of the breath with a long shrill whoop, or a succession of such. The "whooping" begins in the second week of the disease; sometimes later. The earlier symptoms are like those of a common cold, with a cough of ordinary character. Infection lasts 6 or 8 weeks after the disease is declared.

NOTE.—Children who have been exposed to infectious diseases should be excluded from schools and other gatherings for a period exceeding by a little, at least, the period of incubation for the given disease. For instance, if the disease is measles, children who have never had this disease, but who have been exposed to its infection, should be kept from school for two weeks after the last exposure; or, if it is scarlet-fever, one week.

One attack of diphtheria does not exempt from subsequent attacks.

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Judge not the workings of his brain.
And of his heart thou canst not see;
What looks to thy dull eyes a stain,
In God's pure light may only be
A scar brought by some well-won field,
Where thou wouldst only faint and yield.

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The foolish, ugly, dull, impertinent,
Are with their persons and their parts content.
Nor is that all: so odd a thing is man,
He most would be what least he should or can.

# DOMESTIC VARIETIES.

## Don't Know It All.

Some one says you might read all the books in the British Museum, if you could live long enough, and remain utterly an illiterate, uneducated person. Then, again, if you read ten pages in a good book, letter by letter—that is to say, with real accuracy—you are forevermore, in some measure, an educated person. It is only in a measure that a person can be educated. When there were but few books it was possible for one person to know their contents. Science has widened, and the butter of intelligence must be spread thinner. The ripe scholar is one who is ready to drop off. Only boarding-school girls finish their education. The bald-headed professor who has been studying all his life feels confoundedly ignorant in the face of the many things he does not know. A child can ask him questions he cannot answer. The young man goes to college to be educated. The most college can do for him is to put him on the road leading to knowledge. It takes everybody to know everything, and very little of anything is yet known. Run away from the man who claims to know it all. He will make you tired exposing his own ignorance.—*New Orleans Picayune.*

## A New Fashion for Belles.

Young Mrs. Waldorf Astor has set a new fashion for the belles of high society. It is based on an æsthetic, intellectual, exquisitely cultured idea, and all the women in that particular circle are already obeying it. "Show no consciousness of your bustle." That is the mandate. In other and more explanatory words, do not betray the fact that you are in the least anxious about that abnormally developed and easily displaced appurtenance of your costume.

"How do you know he isn't a gentleman?" asked somebody of Mrs. John Biglow, as that eccentric wife of an ex-governor commented on a chap at a recent reception.

"Because he parts his coat tails when he sits down," was the reply.

What she meant was, that a true gentleman should appear so unaware of his clothes, that, in taking a seat, he would not spread aside the skirts of his coat to save them from getting wrinkled. That is the doctrine embodied in Mrs. Astor's innovation. The belle must not adjust the draperies of her tournure so much as by the slightest pat or the most obscure adjustment.—*New York Letter.*

## A Word to the Girls.

When your brother is asked what vocation he intends to follow, he says that he hopes to be a doctor, a minister, a merchant, or a mechanic. He is qualifying himself for some special work in life, and studying with a certain end in view. But when some one asks you what you intend to become, you are not able to answer. The question is a new one. Perhaps it had never occurred to you that you should choose and prepare for a certain work. But why not? Why should not you, as well as your brother, be ready to meet the future?

Our grandmothers and great-grandmothers may have held that work lowers the dignity of the "fairer sex," and as to learning a profession, most of them would have raised their hands in horror at the thought. In fact, they were barred from the professions and higher education. Such mistaken ideas may have been well enough for our "fore-mothers," but they will not do for the girl of the last quarter of the nineteenth century. She lives in a different atmosphere: public sentiment has whirled about to a more sensible position. It has been learned that woman can be doctor, dentist, lawyer, teacher. There is no field into which she cannot enter and reap success.

While she is to be admired who, whether through hardships or in favorable circumstances, qualifies herself for the higher professions, it is not for these attainments we especially would plead. We believe that every girl should be taught some honorable means of self-support, as religiously as she should be taught to love her God. It makes no difference what her social position is *now*, whether she be the daughter of luxury and ease, or the child of humble poverty, she should learn a trade, a profession, a remunerative business, to which she could turn if required so to do. She should learn some one thing so well that people would be willing to pay her for doing it. Let it be speaking French, or making bread, if she be competent and can show herself to be, the world will receive her when she knocks for admission. The idea is, not that she should master any great thing, but that she should excel in some one thing. All honor to those who aspire to and work for high positions in literature and art; but in choosing a business with a view to remuneration, it might be well to remember that the world can live without French and music, but it must have bread.

But what is the need of devoting time and money to this preparation, when we, like the most of girls, intend to marry, and will then not follow our chosen vocations? you ask. The poor woman living at the end of your street, who is struggling to support herself and three little ones, asked the same question years ago when she was care-free and hopeful, like you. Look into her troubled face to-day, and allow her to

answer the question for you. You may never be called upon to make your own living. Very well. Be qualified so to do, anyway. It will make you more independent, and happier. You will gain strength by the effort put forth. Your friends will admire you the more, and you will be the better fitted to grace any position in life to which you may be called.

### The Ten Sanitary Commandments.

I am Hygeia, the daughter of Esculapius, the Giver of Health: and the one who savest thee from the bondage of Pain.

1. Thou shalt not esteem Money, or Land, or Fame, or Learning as idols before me.

2. Thou shalt not make unto thee any adulterated likeness of anything that is in the heaven above, or that is in the earth beneath, or that is in the water under the earth. Thou shalt not possess them, for I, Hygeia, am a just goddess, visiting the disobedience of these, and all my laws by the fathers, even upon the children of the third and fourth generation of them that despise me, and showing mercy and giving health unto thousands of them that love me and keep my commandments.

3. Thou shalt not speak lightly of me, nor take my name in vain: for though I am thy preserver, I will not hold him guiltless that despiseth me.

4. Remember thy body to keep it clean, for cleanliness is next to godliness. As saith Emerson.—"It is better to eat with a washed sinner, than with a dirty saint." Six days shalt thou labor and be industrious, but the seventh shalt thou observe as a day of rest. In it thou shalt be especially clean, and shalt not do any unnecessary work, thou, nor thy son, nor thy daughter, nor thy man servant, nor thy maid servant, nor thy cattle, nor thy stranger that is within thy gate.

5. Honor me and reverence my statutes, that thy days may be long and happy upon the land on which thou dwellest.

6. Thou shalt not kill, unless it be disease germs (which my soul hateth), and those who obstruct and disobey the laws of quarantine which I have proclaimed for the protection of my followers.

7. Look not thou upon the wine when it is red, for wine is a mocker. It tendeth to poverty, adultery, and death. At the last it biteth like a serpent and stingeth like an adder.

8. Thou shalt not steal any pestilence nor contagion from thy neighbor, nor shalt thou give them unto another.

9. Thou shalt not bear false witness against thy neighbor, nor against Providence, by accusing them of causing thy sickness, when thou, thyself, art daily transgressing my precepts and inviting upon thee my sure and just penalties.

10. Thou shalt not covet anything that thy neighbor hath.—his house, his wife. his man servant. his maid servant. his ox. nor his ass. nor *any* thing.—so much as the good health and happiness that I will give thee if thou wilt faithfully obey my laws and humbly and continually walk therein.—*Monthly Bulletin. Iowa State Board of Health.*

## The Mission of Pain.

None relish pain. It is not considered one of heaven's good creatures. Its possessor is pitied, not envied; and the one who inflicts pain is an object of censure. if not of punishment. Yet. pain is an evangel of protection and mercy! Paradoxical as it may seem. the mission of pain is to prevent suffering! It is a faithful. ever-watchful sentinel. guarding the citadel of the house in which we live. and warning us of even the invisible attacks of microscopic foes that float in the water and lurk in every passing breeze.

An anonymous writer in *Temple Bar*. some years ago. said most beautifully,—"The power which rules the universe—this great, tender power—uses pain as a signal of danger. Just. generous. beautiful Nature never strikes a foul blow—never at us behind our backs; never digs pit-falls. nor lays ambuscades; never wears a smile upon her face when there is vengeance in her heart. Patiently she teaches us her laws; plainly she writes her warnings; tenderly she graduates their force. Long before the fierce red danger-light of pain is flashed. she pleads with us as though for her own good's sake. not ours. to be merciful to ourselves. and to teach each other. She makes the overworked brain to wander from the subject of its labors. She turns the over-indulged body against the delights of yesterday. These are her caution-signals: 'Go slow.' She stands in the filthy courts and alleys that we pass daily. and beckons us to enter. and realize with our senses what we allow to exist in the midst of the culture of which we brag. And what do we do for ourselves? We ply whip and spur on the jaded brain. as though it were a jibbing horse—force it back to the road that leads to madness. and go on full gallop.

"We drug the rebellious body with stimulants; we hide the signal and think we have escaped the danger. and are very festive before night. * * * At last. having broken Nature's laws and disregarded her warnings. forth she comes—drums beating. colors flying—right in front to push us.

"Then we go down on our knees and whimper about its having pleased God Almighty to send this affliction upon us. and we pray Him to work a miracle in order to reverse the natural consequences of our disobedience, or save us from the trouble of doing our duty."

—*Monthly Bulletin. Iowa State Board of Health.*

### Doors of Paper.

Paper doors are said to be great improvements over wooden ones. They are formed of two thick paper boards, stamped and moulded into panels, and glazed together with glue and potash, and then rolled through heavy rollers. After being covered with a water-proof coating, and one that is fire-proof, they are painted, varnished, and hung in the usual way.

—*The Builder.*

### Two Workers.

The funny man sat at his desk all day,
And worked in a silent, industrious way;
And out in the woods the squirrel light
Is gathering chestnuts from morn till night.

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## CONTAGIOUS AND INFECTIOUS DISEASES IN NEW HAMPSHIRE.

The following contagious and infectious diseases were reported to the State Board of Health for the month of November:

Diphtheria:—Keene 27, Claremont 3, Rochester 1, Manchester 7, Boscawen 1, Newport 5, Concord 1, Barrington 2, Nottingham 1, Epping 4, Wolfeborough 1. The Wolfeborough Board of Health reports,—"Immediately isolated the family, and restrictive measures, promptly enforced, stamped out the disease."

Scarlet-fever:—Claremont 3, Salem 2, Keene 1, Manchester 17, Bedford 1, Goffstown 2, Tilton 3.

Typhoid fever:—Claremont 3, Rochester 1, Manchester 6, Boscawen 1, Rindge 1, Nashua 1, Newport 4, Goffstown 1, Exeter 3.

Measles:—Manchester 9.

Croup:—Concord 2.

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## SPECIAL NOTICE TO OUR EXCHANGES.

Although the SANITARY VOLUNTEER ceases with this issue, we would be especially pleased to have our exchanges continued, and will furnish to all such, copies of the reports of the State Board of Health, the Board of Commissioners of Lunacy, the Registrar of Vital Statistics, and all special papers and documents issued by these departments. Further, we will forward exchanges, after looking them over, to our state charitable institutions, where they will be most thankfully received and appreciated.

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